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THE BRICKBUILDER.

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ADVERTISING.

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Advertisements will be printed on cover pages only.

AN INSURANCE TRUST.

THE *American Architect* in a recent editorial makes a very sensible suggestion that the fire insurance companies might imitate the example of the steel companies and combine into a trust. Such a proposition it seems to us has everything to commend it, and undoubtedly one of the first results of the union would be the raising of the standard of first-class buildings from an insurance standpoint. When the Manufacturers' Mutual Fire Insurance Company undertook to put a premium upon good mill construction it began a work which has accomplished perhaps more than any one agency towards the elimination of fire risks in that particular class of buildings. This company had the field to itself, and we can readily understand how a trust which could control all the insurance interests, which would be free from the temptations of competition for business, could bring about a much needed reform in some constructive features of our modern buildings. The terrible annual waste which this country has to stand is in large part worse than needless, and if conditions should be such that the *American Architect's* suggestions could not be carried out, it is to be hoped that there might be at least a more intelligent concerted action on the part of the underwriters towards reducing fire risks. That such risks can be reduced is abundantly demonstrated by the success which has attended the use of terra-cotta and burnt clay in what we term fire-proof construction, and the danger now is not from the few buildings which have been intelligently planned by competent constructors and architects, but rather from the great majority of buildings which are allowed to exist without any fire-proofing whatever. It is these which constitute the real menace not merely to themselves but to the better class of buildings, as was shown in the Rogers-Peet fire in New York. The rates on inflammable construction in our cities ought to be prohibitory. We cannot look to the building departments to discriminate against such structures, but it is a matter of business prudence for the insurance companies to grapple with the careless condition of the ordinary construction in our large cities, and by concerted action there is not the slightest doubt that in a very short time the fire risks in our large cities could be reduced by a very considerable extent.

THE QUESTION OF STYLE.

A VERY earnest discussion has been going on recently in England regarding the architectural style in which it was expedient to build the proposed Liverpool Cathedral. This is a construction which was started on paper many years ago, but after a long period of inaction has taken a new lease of life and bids fair to assume definite shape. It is extremely interesting to follow the discussions which take place on this subject, and it is also worth while to consider what such discussion implies. England is a country in which architecture has never been *sui generis*. Its art has been imported, in essence at least, and though greatly modified by local conditions and admirably adapted to the wants of the British public it has never had the spontaneous inherent life which has characterized Italy, France and Spain. In neither of these last named countries would there be any serious discussion as to what style should be used for any building; and indeed we even fancy that in the United States, while there might be differences of opinion, there would probably be very little discussion upon such a subject. We would feel a natural gravitation toward a particular style, or at least we would not consider it in any sense a national calamity if one style rather than another were adopted. There will always be room for honest difference of opinion between the classicist and the romanticist. There will always be those who will follow the lead of the Renaissance

as well as those who feel that no church edifice can be truly religious unless it is a bit barbaric or Gothic. But the acrimony of the discussion which seems to be disturbing the English architects is not easy for us to comprehend, and shows that the question of style, after all, is quite as much one of fashion as of conviction in England. The idea that the committee can decide whether the building shall be Gothic or Renaissance seems to us indicative of a condition several degrees worse than we have to contend with here. There is probably not an architect in the world who could do equally well in any two styles; and, judging by the discussion, there is at present in England no recognized tendency towards a particular style; her architects are working individually rather than collectively, and the passing period is one which will leave no distinctive creation of English architecture. Under these circumstances it would seem by far the wiser way for the Liverpool committeemen to ignore the question of style and make the selection one of men, trusting that the best architect they can select will be most likely to give them the best building, rather than that a predetermination of style will be any guarantee of architectural success.

THE INFLUENCE OF ENVIRONMENT.

WE quote from a contemporary: "The —— School of Architecture which opened its new year is doing a valuable work in an unassuming manner. The course embraces the same studies as in the great schools. It is perfectly well recognized that a young man may get as good an education for all practical purposes at a small college as at a great one and that more depends upon the student himself and his immediate instructors than upon his environment." For all practical purposes we agree fully with the foregoing. Fortunately, however, architecture is far more than a matter of practical purposes. It is an art, and as all creative arts are essentially imitative in their processes of development, architecture is the art which must be studied by example. So that while having every good wish for the school of architecture to which the quotation refers, and without doubting its good work in practical lines, it is evidently unqualified to teach architecture as a fine art, and the students therein who rely upon themselves and their instructors to make up the deficiencies in environment will surely appreciate what they miss when they are able to compare themselves with graduates even less richly endowed by nature, but who have profited by the artistic environment which counts for so much in the three or four leading architectural schools of this country.

THE SAFETY OF SAINT PAUL'S.

AFTER all, there are some conditions which if not more successfully met in this country than anywhere else are certainly here overcome in an easier and more assured manner. We have seen many statements in both the daily and the technical papers in regard to the structural safety of Saint Paul's in London. The cathedral rests upon a relatively thin layer of clayey soil superimposed upon a deep bed of alluvial deposit which extends to so great a depth below the pavement that at the time Sir Christopher Wren built the structure he did not deem it necessary to carry his foundations down to the firm subsoil, which we believe is some sixty or seventy feet below the sidewalk. The numerous tunnels which have been carried under London in all directions have raised fears that their construction would sap the strata of soft earth and so undermine the cathedral foundations, and the English constructors seem to be much exercised as to what to do. There are probably a score of architects and engineers in this country who would not have the slightest hesitation in grappling with a problem of this sort and solving it successfully, and aside from a question of cost there is not the slightest reason why tunnels should not be carried anywhere under Saint Paul's and the foundations extended down to a proper bearing; but the difficult problems of foundation work which were so new to the profession in this country a generation ago are almost a closed chapter to our English confrères, and while the imputed American invasion of London need not be carried to the extent of an American architect being employed to properly construct foundations for the city's great cathedral, we believe that those having the building in charge would be relieved of many of their fears as to ways, if not means, by a visit to this country and a study of the heavy foundation work which has been put under so many of the huge buildings in New York and Chicago.

CLUB NEWS.

The annual exhibition of the T-Square Club will be held in the galleries of the Art Club of Philadelphia, from January 4 to 18. Entries must be received not later than November 23. Exhibits must be received not later than December 7. Exhibits will be discharged January 20, 1902, when they will be returned to the owners, or will be forwarded to New York (subject to selection by a committee representing the Architectural League of New York), as may be directed on the entry slip.

The T-Square Club has just issued a syllabus announcing the subjects for competition among its members for the coming season. In accordance with a recently established custom of the club the subjects for study are limited to one department of design. Certain phases of city street embellishment are to be taken up at each meeting. Far from encouraging attention to purely imaginary studies for beautifying thoroughfares without regard to public needs the programme invites a solution of practical problems. Architectural treatment is to be suggested for an elevated railway station, a city square, facilities for bill posting, a public wash-house, street accessories and public conveniences. That the question of these improvements is a pressing one in the rapid growth and development of our cities is shown by a number of instances of actual legislation. It is this desire for civic beauty and convenience that the T-Square Club recognizes and to which it turns its attention with characteristic zeal. The competitor whose designs receive the highest number of approving votes is awarded the T-Square Club Traveling Scholarship.

Brickbuilding in Modern France. IV.

BY JEAN SCHOPFER.

WE pass on to the north of France. We must choose with discrimination, for here stone is the exception and brick the rule. The warm tones of the brick seem to have been created to brighten this rather dull climate. They add a spot of color to the hazy horizons of the North. The brick is almost always red. Sometimes it is relieved by notes of lighter brick.

FIG. 1. HOUSE AT ROUBAIX.

The series of houses given here call for few commentaries. They were all built at Lille or at Roubaix, large manufacturing towns, or in their immediate neighborhood, to serve as habitations for wealthy manufacturers. In their general form we can see that they belong to a septentrional country. They have conserved a certain

FIG. 2. HOUSE AT LILLE.

FIG. 3. HOUSE AT ROUBAIX.

reminiscence of the Flemish Renaissance in general taste and sumptuosity, even heaviness sometimes. The desire for comfort is evident, as is the love of the picturesque which is, perhaps, not always refined, but which, such as it is, has a certain originality. Towers are popular. Belfries and pinnacles, high dormer windows and the clear accentuation of the different parts of the house, divided and asymmetrical façades, great steep roofs and monumental chimneys, — all these elements, even if they have donned Renaissance garments, come from the middle ages.

Such are the different characteristics developed according to the different tastes of the architects, with more or less happy results. Sometimes the whole is decidedly too heavy, as in Fig. 1, and the forms of baroque septentrional architecture are evident. Sometimes, on the contrary, as in Figs. 2 and 3, the construction and decoration are remarkable in their sobriety. Some architects use only red brick, with angles and window frames of white

FIG. 4. HOUSE AT ROUBAIX.

FIG. 5. HOUSE AT LILLE.

FIG. 7. HOUSE AT LILLE.

stone. Others alternate stone and brick, and this system is pushed to its utmost in the house represented in Fig. 4. Enormous stones in bossages heighten the effect. Some houses are very broken up as for construction, and the love of the picturesque greatly exaggerated. Others, on the contrary, retain a certain amount of good taste in the picturesque, and from this point of view the house in Fig. 5 is certainly one of the best in comfort and harmony. There are town houses rich and correct but of little interest (Fig. 6). There is also a collection of most picturesque country houses where white stone plays an important part at the angles, frames and in the bossages,

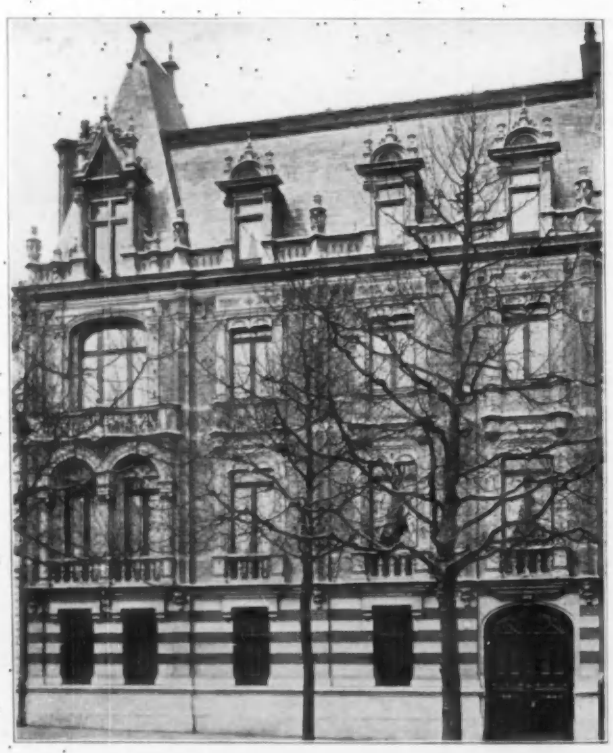


FIG. 6. HOUSE AT ROUBAIX.

FIG. 8. HOUSE AT LILLE.

FIG. 9. HOUSE AT LILLE.

and which are characteristic because of the presence of little towers (Figs. 7, 8, 9 and 10), some mere ornaments (Figs. 7 and 10) and others, on the contrary, more important, and permitting the construction of a *loggia* (Figs. 8 and 9).

Such is the richness and diversity of brickbuilding in the north of France.

If a conclusion were necessary to these brief notes, we might say that, on the whole, brick, which was considerably employed in France during the Renaissance, is also very popular nowadays.

If all the buildings that have been made of it have not been successful, we must remember that the architects are to blame and not the material. We have been overrun with a quantity of little houses, copies of the Renaissance and the Louis XII styles, cheap, vulgar and unintelligent imitations.

On the other hand, a few architects have shown that they appreciated the immense resources of gay and polychrome brick. They treated brick as it should be treated; they made themselves not only brick decorators but brick constructors. These few will form an independent school. They are in the right; and the right, in spite of all, triumphs in the end.

FIG. 10. HOUSE AT LILLE.

HOUSE AT MOUREAUX.

The Greek pavilion of Mr. Magne, Train's Chaptal College, the house on the place St. Sulpice, the Boucicaut Hospital by Legros and, above all, the Lakanal Lyceum of Mr. De Baudot will offer fruitful study to all those who have the development of rational brick architecture at heart.

We should write of enameled bricks, but that is beyond the limits of our subject. A word has been said about a façade of Mr. Train. A new career opens before polychrome brick since the recent experiments made in Paris with bricks baked at a very high temperature.

These bricks offer qualities of remarkable solidity and impermeability, and whose colors, forming part of the material, penetrate it and cannot crack or fall off. They promise a new domain of unlimited richness to terra-cotta building.

But these experiments are of too great importance to be treated in a few lines. We shall return to them more at leisure for the benefit of the readers of THE BRICKBUILDER.

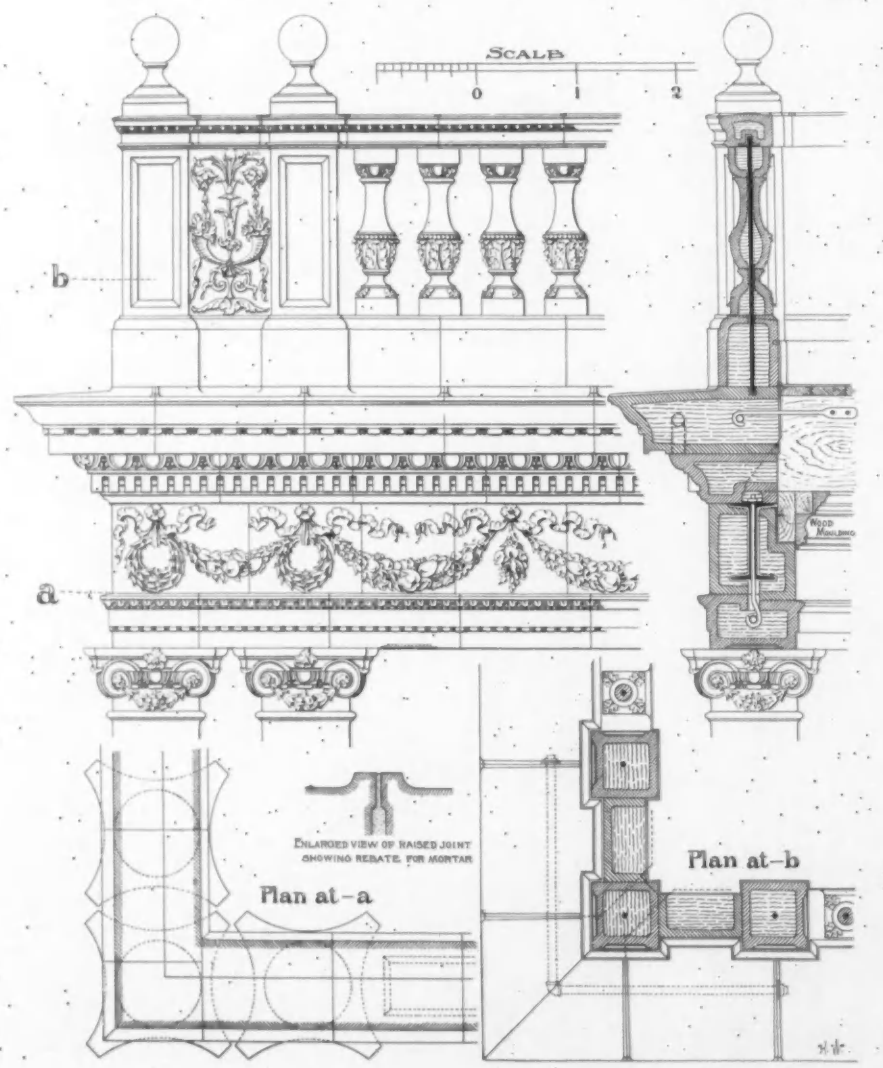
[END OF SERIES.]

Terra-Cotta and Steel.

BY THOMAS CUSACK.

EXAMPLES of terra-cotta and steel construction have appeared in past issues of THE BRICKBUILDER, through which medium they came within reach of a much wider circle than that wherein they had originated. The extent to which the data thus formulated have been used in the execution of later work of like character shows that these suggestions were found serviceable by those to whom they were primarily addressed. It proves, if it proves anything, that better methods had not been discovered — in itself an adequate if not wholly conclusive indorsement. We are therefore inclined to the opinion that further and more recent examples of composite construction will receive equally favorable attention from architects, engineers and others directly interested. Terra-cotta manufacturers who desire to keep themselves posted on what is being done by their competitors will find much advantage in a free interchange of ideas at every forward step in current practice. They, no less than the progressive, liberal-minded men in other walks of life, are beginning to see a "community of interest" in contributions that, once made, become common property.

PORTICO, VETERINARY COLLEGE, CORNELL UNIVERSITY.
C. F. Osborne, Architect.



DETAILS OF PORTICO, CORNELL.

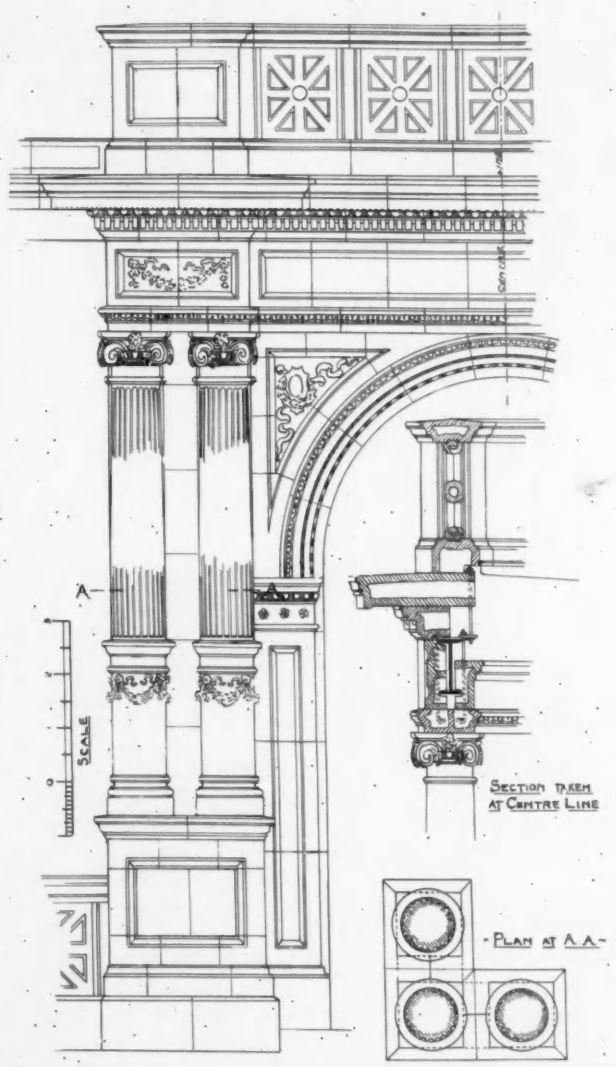
Answering the inquiries of a well-known architect a few days ago as to the advisability of a terra-cotta portico, we were able to offer him the accompanying scheme of construction, with some advice based on experience gained in connection with many similar problems. This proposal has since been adopted substantially as presented, and the result will, we believe, amply justify all that has been promised, if it does not satisfy the more sanguine expectations entertained concerning it.

The proposed portico has some points of resemblance to a porte-cochère erected a few years ago at the Veterinary College, Cornell University, which we likewise deem worthy of illustration, if only by way of comparison. In the latter case the clear span of widest opening is 12 feet, the weight over which is carried by two 9-inch channels bolted together on 1-inch separators. In the blocks forming soffit provision is made for a ¾-inch rod, from which they are supended by ¾-inch hangers. Said hangers, passing up through slot between channels, are adjusted to required tension by nut and washer. The frieze is molded to fit snugly between flanges of channels, to which principal support the blocks are attached in such way

that the weight is transmitted to the channels rather than allowed to rest on the soffit suspended from them. The other members of cornice and balustrade, therefore, rest directly on the girder, as do the deck-beams to which the whole entablature is anchored.

A ½-inch rod goes through each of the balusters, and through a 2¾ x ⅜ plate, for which a rebate is made in bottom bed of capping to balustrade. As the lower surface of this plate is exposed between the balusters, it should always be galvanized to prevent rust and then painted to match the terra-cotta before setting. A balustrade so constructed, when properly set in cement mortar, becomes quite rigid, and its permanent security can be relied upon irrespective of climatic conditions.

The corner blocks of cornice, having a projection on two sides with corresponding reduction of bond, call for some additional support. This is furnished in the manner indicated by dotted lines at *b*. Two pieces of 1-inch pipe are screwed into an ordinary elbow, after which a nut with washer is tightened on the outer ends. In this way the angle is securely bolted to the two adjoining blocks before any of the other members of that course are set in position. The cement entering the rebated ends of these blocks and held there under pressure of the bolt cannot escape. When it sets, the three blocks become for all practical purposes a monolith. To make a block of such size in the first instance, while not impossible, would be inadvisable, if for no other reason because of the difficulty in handling and the liability to injury in transit.



DETAILS OF PORTICO, BAPTIST HOUSE, BROOKLYN, W. E. Parfitt, Architect.

A photograph of this work taken a few years after its erection shows that the most noticeable defects are due to a want of care or skill in the setting. The horizontal lines are not as true as they might have been, an irregularity not inherent in the individual pieces, but due to a want of accurate adjustment. The vertical joints are unnecessarily large, the mortar has not been made to match the terra-cotta in point of color, which latter oversight accounts for the streaks and mortar stains that give cause for adverse criticism on an otherwise passable piece of work. The disadvantage under which eastern manufacturers suffer in the matter of setting is not shared by our friends in Chicago. The latter prefer setting their own work, and architects who favor the use of terra-cotta do much to encourage the practice. Some indeed insist upon it as a condition of the contract. There is doubtless much to be said on both sides; but we incline, in this as in some other things, to the western example. We have seen work handled with as much care and set with as much skill by a general contractor as could have been bestowed upon it by the most conscientious manufacturer; but we are obliged to admit that such instances are the more conspicuous because of their comparative rarity. Of course in New York and other cities where terra-cotta architecture is now the general rule an increasing number of bricklayers are gaining experience, and contractors who give themselves the trouble to think have a wider circle from which to select the best men. The men themselves who have acquired an aptitude in that line of work are beginning to attract favorable notice, and will in time gravitate towards the point for which nature or accident has prepared them. Some of the "front men" are now developing into sub-contractors, with terra-cotta setting as a special and presumably lucrative employment. Whether as a coincident or a case of water finding its level, this evolution is on parallel lines with a similar one in England, where terra-cotta setting became a specialized branch of bricklaying some years ago. When history so repeats itself it is usually owing to the force of similar circumstances.

So simple a matter as the constituents and method of mixing mortar for pointing gray (limestone) terra-cotta has been known to exercise the minds of certain builders to an unreasonable degree. We could speak of several, professional and otherwise, who have come to grief in an unsuccessful attempt to master its apparently insoluble mysteries. One such, with wit enough to grow rich in Wall Street, abandoned all hope and employed a painter to "touch up the joints." The painter was probably an expansionist, for by the time he got through, joints that did not exceed ¼ inch when he started appeared at least ⅝ from the sidewalk. The climax was reached in a vain effort to remove the paint

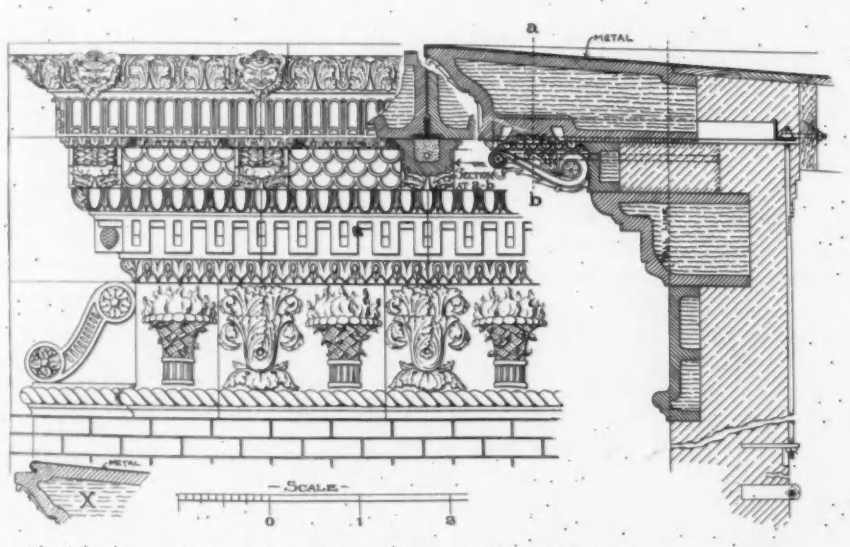
RENSSELAER HOUSES, ALBANY, N. Y.
Marcus T. Reynolds, Architect.

that had been smeared on the ends of the terra-cotta, and so an elaborate block of buildings carries these discreditable scars as a permanent eyesore.

Two inquiries from widely different quarters reached the writer a short time ago on the same day, touching this question of mortar. One asked how to prepare mortar to match the terra-cotta; the other, not less frankly, though with a shade less modesty, requested that mortar be sent, also a man to do the pointing. In answer we advised both of them to employ an intelligent bricklayer and tell him that a neat, workmanlike job was expected and desired. He would do the rest. Failing such a man, then an experienced stone-setter and, the color being gray, preferably one accustomed to limestone. The inquiries were not repeated, from which it may be inferred that the advice proved salutary. With so many brands of cement of different shades, sand from silver to dark brown, and lime putty for those who prefer using it, there should be no difficulty in preparing mortar to any desired color, toughness and plasticity. In the case of red and black, metallic stains of undoubted permanency can be obtained from reputable dealers.

The propriety of using wood for either deck or ceiling is open to question; and on that item at least we think our later example, given in a portico for the Baptist Home, Brooklyn, is an improvement. Constructed in the manner shown, the roof is fire-proof and can be made permanently water-tight by cement or asphalt graded so as to shed water to leader or other outlet. The ceiling, too, can be finished in cement, plain or paneled as choice of circumstances may dictate. Tin roofs are liable to leak, and when they do, ceilings, whether wood or plaster, call for the immediate attention of a painter after the leaks have been disposed of. In less than five years the more durable method of construction will likewise be found the less expensive and in other respects greatly preferable.

The proposed portico is in its way an example of terra-cotta construction *per se*. Granting the use of steel as an auxiliary support, there is no compromise or qualification in the preference given to burned clay. The base, dies, columns and capitals are in this case terra-cotta. There is but one joint in each column, and it, being at the band, is practically invisible. The panels in balustrade are made in solid pieces rebated into the dies and capping in such way that sufficient rigidity is secured without any iron. Instead of two channels we use a 12-inch I beam with a hanger on each side and a 3 x ⅜ inch plate on top. There are four hangers to each block, in consideration of the extra weight of roof, a portion of which is carried by the soffit. Finally, the rain water falling on projection of cornice does not drip down on passers by or those entering the building, but flows back towards the roof through openings in base of balustrade.



CORNICE ON RENSSELAER HOUSES, ALBANY, N. Y.

This last-mentioned precaution is very desirable in the case of an entrance, whatever may be thought of its application to the main cornice of a high building. When the cornice is surmounted by a parapet or balustrade it is rather difficult to make connection between the outer edge of cornice and the metal roof that will remain free from leaks for more than a year or two. When such a task is attempted, as in an important building with which we are acquainted, the metal roofing is usually cemented into a raggle in top bed of cornice. The base of

balustrade, in which sufficient openings have been provided, is then built directly on the metal. The base around dies can of course be flashed separately and so rendered water-tight. Should leaks occur at these points the necessary repairs can be made without disturbing any of the masonry. Not so, however, in long stretches of balustrade under which the expansion and contraction of metal roofing cannot well be provided for except in the imagination of those who have not tried the experiment.

We doubt whether it is really practicable to construct a roof of this kind that will stand the extremes of temperature and remain water-tight for a great length of time. And if it fails to stand that test in the first instance, what may be expected after cracks have been patched and seams resoldered? One such experience is enough to deter most architects from repeating the same experiment. This will perhaps go far to account for the fact that other methods are almost invariably preferred and the one under notice, though sometimes proposed, rarely adopted. The usual method is to make the wash slope outward from face of parapet, allowing such rain water as actually falls on projection of cornice to flow over the nose. Falling from a height of say four to upwards of twenty stories, it gets dispersed, and the addition so made to the ordinary rainfall is inappreciable by the time it reaches the sidewalk.

Where no parapet wall or balustrade has been contemplated, as in the Rensselaer houses, the cornice should, of course, be made to shed water towards the roof. In that case the metal was turned down over the nose of cornice, as indicated in section *a b*. Sometimes a vertical groove is made a short distance back from the outer edge, into which the metal is fastened. That, however, tends to weaken the member, and renders the projection liable to get broken off. A better plan is shown at X, in which a roll is provided a little back from the nose. This affords a convenient hold for the metal, also a protection to that salient angle while swing scaffolds are being suspended from the roof. In other respects the construction of this cornice is simple, safe and comparatively inexpensive. The design, which bears evidence of much thought and artistic appreciation on the part of the architect, is well in keeping with all the other features of an uncommonly handsome group of residences.

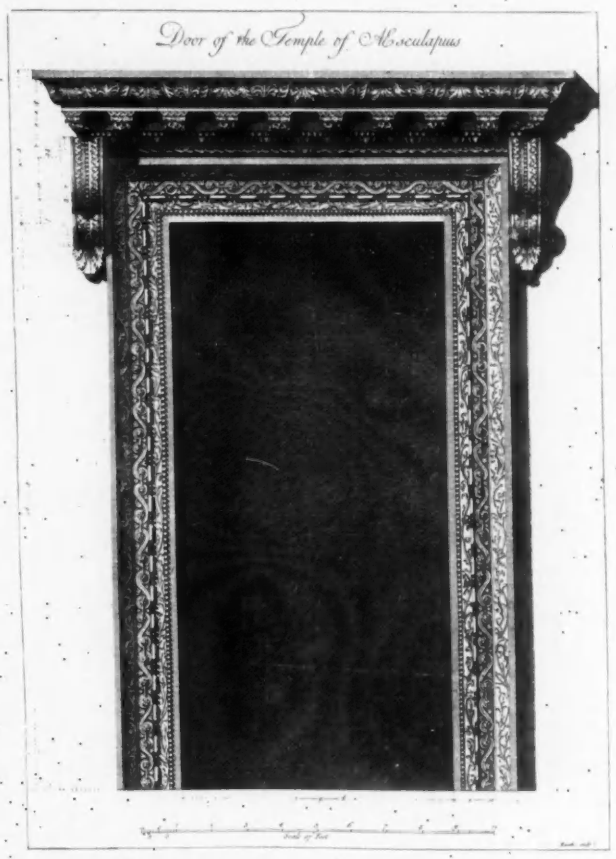
THE use of carbonate of soda to facilitate the laying of masonry in cold weather is now becoming fairly general on the continent, and is also said to be making some headway in the American building world. Experiments were made with this system as long ago as 1890, and mortar treated with soda was employed in laying stone with the temperature as low as fourteen degrees Fahr., and the masonry was found when inspected some time later to be in all respects in a first-class condition. The method employed is very simple, and consists practically in using lukewarm water, in which carbonate of soda has been dissolved, in the making of the mortar. The proportions employed in the solution are two pounds anhydrous carbonate of soda to two and a half gallons of water, but with intense cold the amount of water is generally reduced to one half. — *Exchange.*

"The Brickbuilder" Competition. VIII.*

GIVEN BY THE GRUEBY FAIENCE COMPANY. CRITICISM AND AWARD.

BY C. HOWARD WALKER.

THE designs presented in the competition for a theater entrance of faience are few in number and are not of a very meritorious character. As a preliminary to a criticism of these designs, the consideration of the



AN EXAMPLE OF THE POSSIBILITIES OF THE ADAPTATION OF SCULPTURED ORNAMENT WELL FITTED FOR TRANSLATION INTO FAIENCE.

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*PROGRAMME.

The design is to be of the ticket windows in the vestibule of a theater and the immediate treatment about these windows.

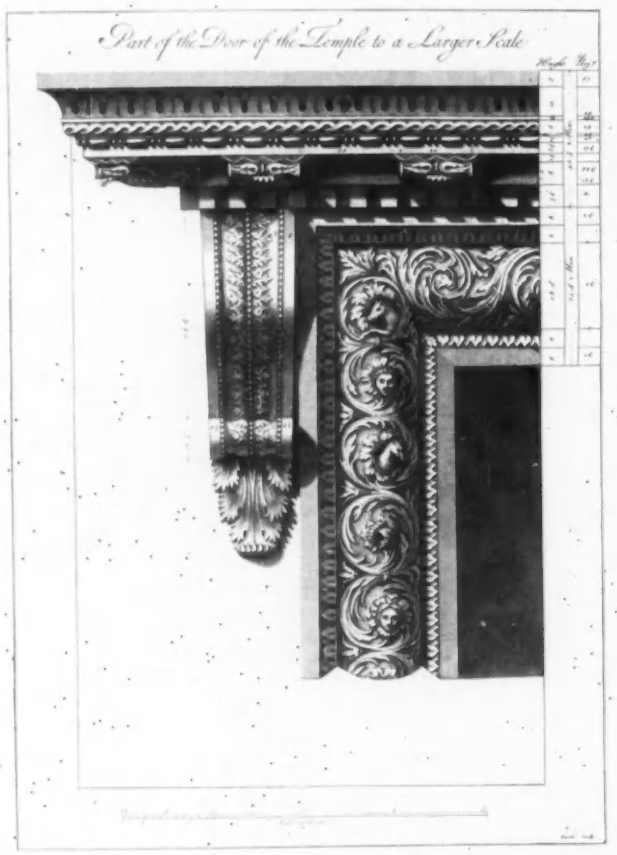
There are to be three windows at a height of about four feet above the floor, and they need not be of equal size. The intention is to obtain a design which, while a decorative motive in character with the surroundings, is complete in itself. All glass used shall be plain, undecorated glass — no stained glass. Grilles to be simple in character, if used. The treatment of the adjacent wall and its relation to the windows is to be indicated. The design is to be such as is adapted to the working out in faience.

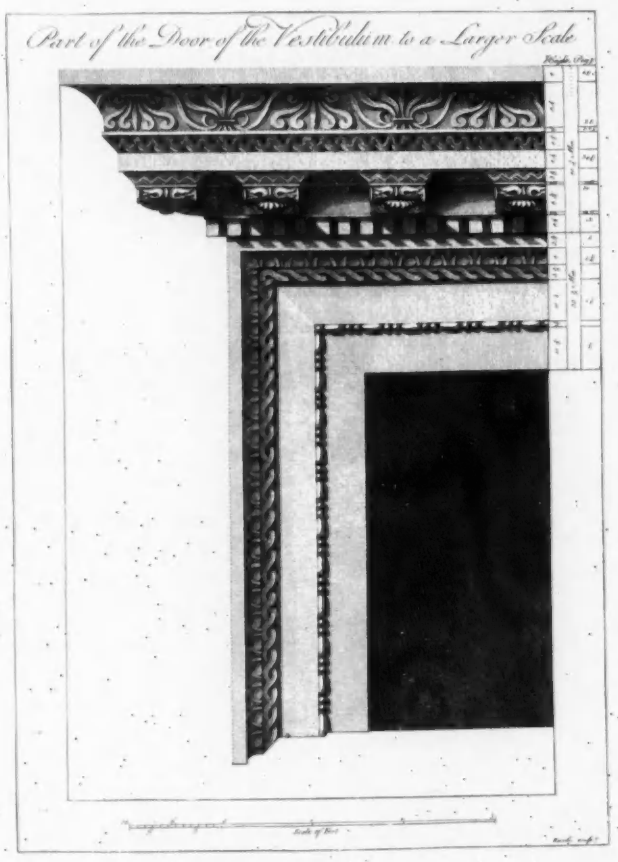
DRAWINGS REQUIRED: An elevation drawn to the scale of ½ inch to the foot, with plan at left and section at right side, near the bottom of the sheet. The drawings to be in black ink with no wash work, on one sheet measuring 22 inches wide by 15 inches high. Shadows, if indicated, to be done in free-hand, parallel perpendicular lines.

For the four designs placed first, the Grueby Faience Company offers prizes of fifty, twenty-five, fifteen and ten dollars, respectively. All premiated drawings are to become the property of the Grueby Company, and the right is reserved to publish any and all drawings submitted.

The competition will be judged by Mr. C. Howard Walker.

individual decorative value of faience as a material is suggested. Its effectiveness is as much due to its color as to its modeling. It occupies a position midway between flat color decoration and sculptured ornament and partakes of both, yet is different from either. It is natural then that it should not be made in absolutely flat planes on the one hand, nor should it merely imitate sculptured work on the other. Its best effects are gained by low relief patterns contrasted with plane surfaces of limited superficial area. It is also a wall or floor covering more than it is a major factor of construction, and would therefore be treated somewhat as a mosaic of large scale. It is of oriental origin, developed as a material to clothe





EXAMPLES OF THE POSSIBILITIES OF THE \PTATION OF SCULPTURED ORNAMENT.
WELL FITTED FOR TRAN.. ATION INTO FAIENCE.

surfaces of meaner substances, and by the nature of its manufacture must be made up of pieces not too large to be readily fired. For these reasons the designs have been placed in the following order:

1st. Beni Al Hassan.
2nd. Eagle.
3rd. Italiano.
4th. Rats.

Beni Al Hassan. Plan and composition simple; design well fitted for faience; contrast of plain and ornamented surfaces good; parapet pattern at base seems in wrong place; design dependent largely on color.

Eagle. General proportions good; composition of one arch above another unfortunate, leaving awkwardly shaped tympanum filled with characterless ornament; design fairly well fitted for faience.

Italiano. Well proportioned from shelf upward; corbeling below shelf complicated and difficult of treatment in faience; design dependent upon modeling picked out with color only.

Rats. According to plan and section, proportions seem heavy for the requirements, especially in the projection of the metal canopy.

REMAINING DESIGNS.

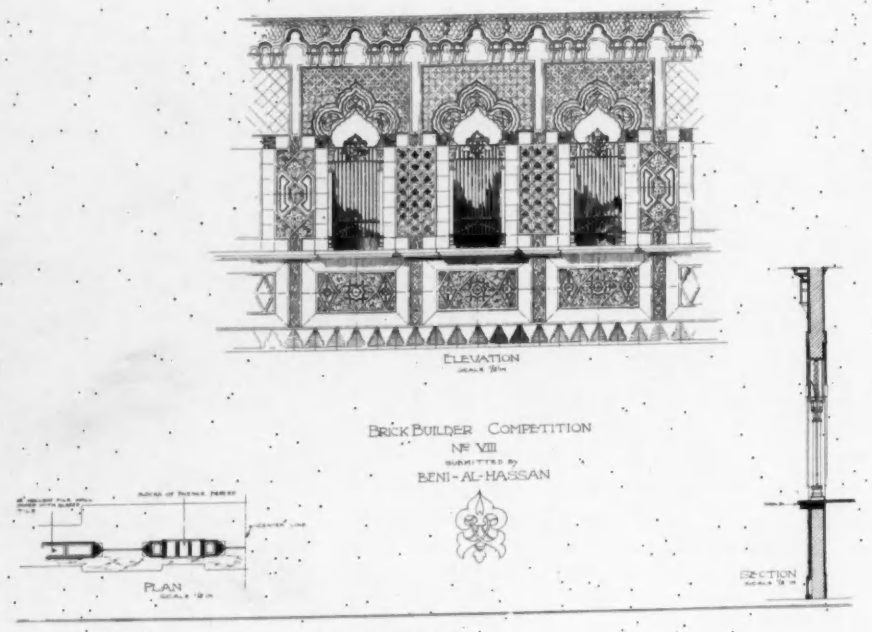
Bow and Arrow. Design has the scale of wood colns and moldings, and would be less effective in terracotta than in wood, because of irregularity of surfaces. It might be made of fine china clay — kaolin.

Western. Badly proportioned; intercolumniation of pilasters too great; entablatures too heavy.

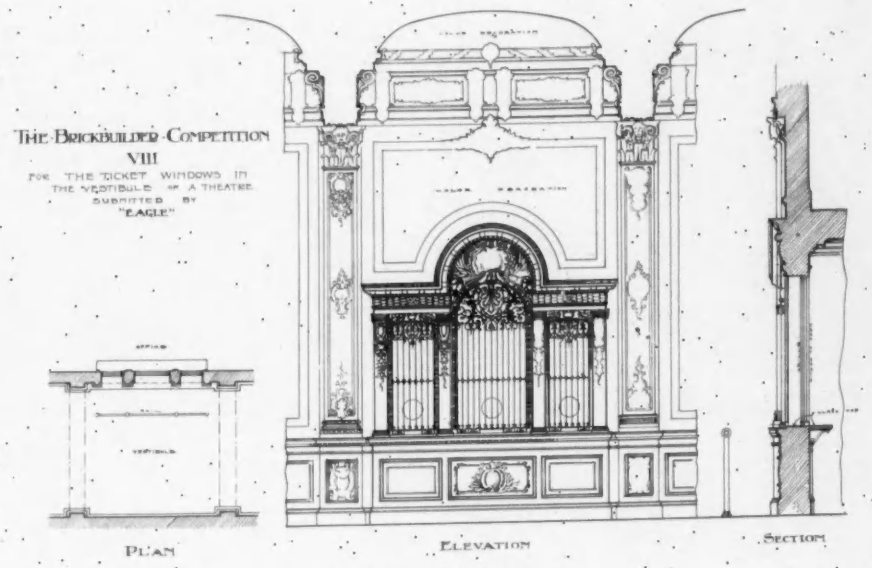
Ticket Seller. Has better proportions; is thin in ornament.

Dot in Circle. Has no distinguishing merit.

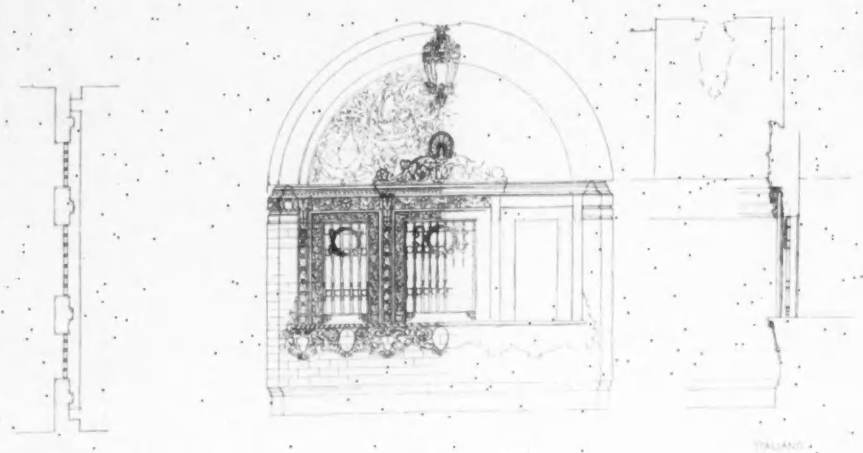
In most cases the modeled ornament has been made too fine or too scattered. As an example of the possibilities of the adaptation of sculptured ornament and faience, several plates of the decoration of doorways, etc., in Diocletian's palace at Spalatro are given, which, while in stone, are well fitted for translation into faience.



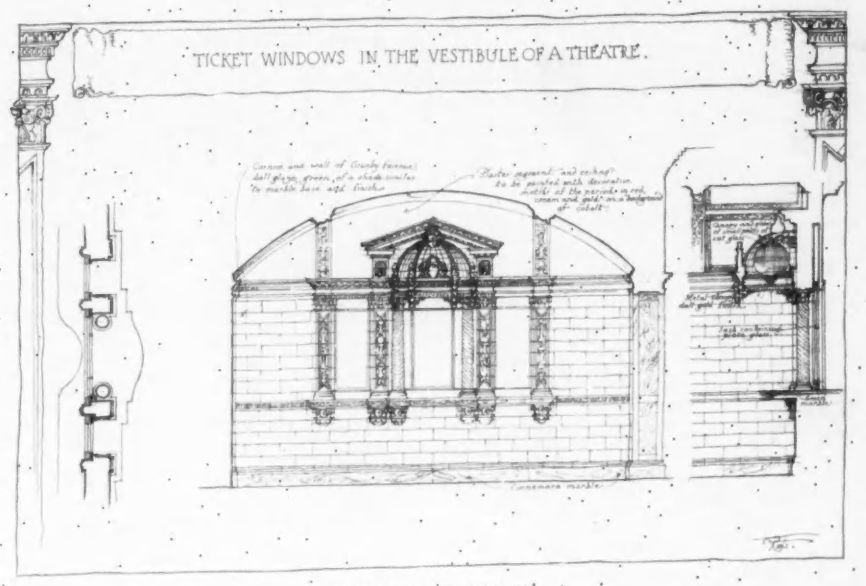
FIRST PRIZE DESIGN.
Hugo H. Zimmermann, Chicago, Ill.



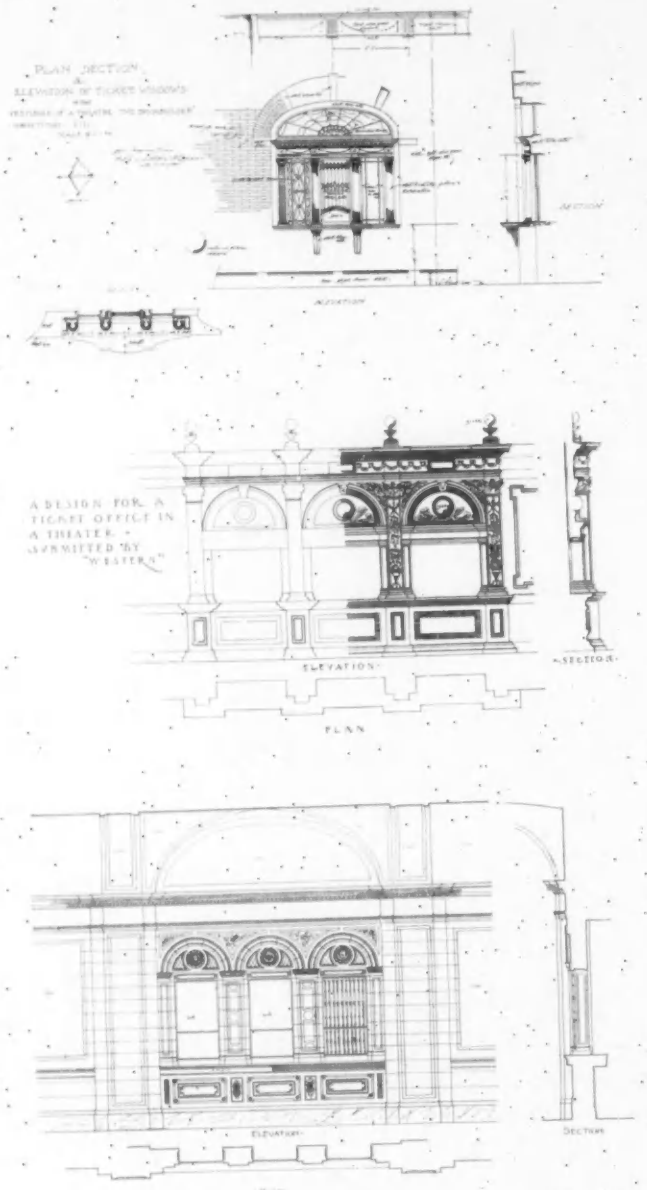
SECOND PRIZE DESIGN.
C. A. Mitchell, Montreal, Can.



THIRD PRIZE DESIGN.
Francis S. Swales, Detroit, Mich.



FOURTH PRIZE DESIGN.
Francis S. Swales, Detroit, Mich.



DESIGNS SUBMITTED IN THE GRUEBY FAIENCE COMPANY COMPETITION, FOR A TICKET WINDOW IN THE VESTIBULE OF A THEATER.

The Recent Fire in Philadelphia.

BY WILLIAM COPELAND FURBER, M. AM. SOC. C. E.

IN years to come, when the knowledge of better ways of doing things makes the old ways seem absurd; our successors will doubtless look back on the loss of life and needless destruction of property by fire, so frequent in this generation, with the same condescension and contempt for our ignorance as we of to-day look back upon the needless loss of life in the past from plagues and "visitations of Providence," assumed then to be entirely beyond the control of man.

"Fire is a good servant but a poor master," and it is a serious reflection on the common sense and ordinary prudence of business men and upon the wisdom of our legislative bodies that such restrictions are not placed upon the destructive possibilities of fires that a catastrophe like that of Friday, October 25, in Philadelphia, would be impossible.

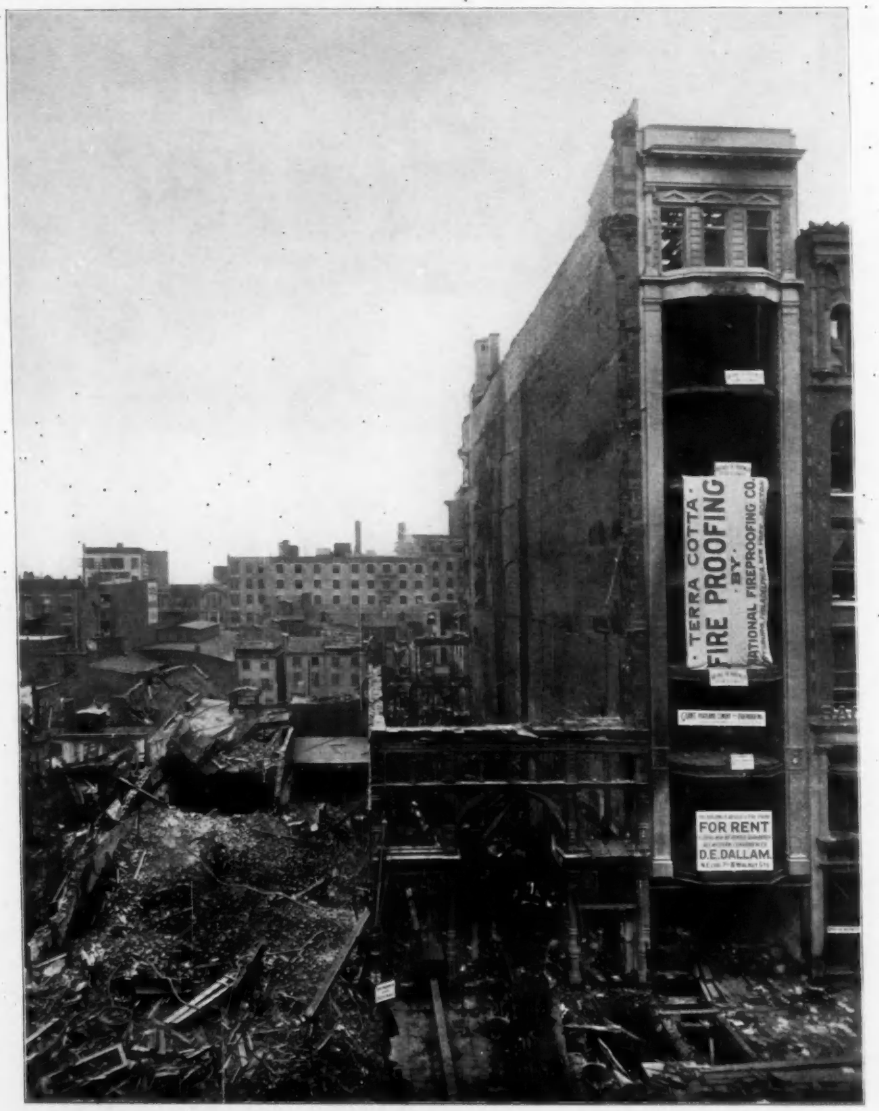
If a house is found in an unsanitary condition and likely to spread infection, it is immediately disinfected or quarantined by the board of health. We have elaborate laws governing the arrangement and disposition of lavatory and plumbing fixtures in buildings, yet there are hundreds of buildings in every city which are more of a menace to life and property than the most unsanitary drainage systems. Imperfect drainage usually makes itself apparent to the senses of sight and smell, and ample warning is given to those who value their health, but the "fire trap" carries on its face no advertisement of its possibilities for destruction, and on the day of reckoning innocent lives are sacrificed and valuable neighboring property destroyed because the owner of a building chose to construct a combustible building in order that he might save a little money on the first cost.

Railroads, steamboats and other public carriers are properly held liable for the safety of life and property intrusted to their care, as well as for the safety of the lives and property of others which may be jeopardized by them in exercising their functions. This is but simple justice, the courts holding that any loss or damage which could have been prevented by the exercise of due diligence or care or better methods should be made good. The laws of this country place few restrictions upon the internal operations of railroads, holding the company liable for the results only. This permits the responsibility to be accurately placed, without the possibility of evasion.

The tendency of this argument is this: The construction and *existence* of "fire traps" is made possible only by our building laws, and by means of these building laws the responsibility of bad construction is placed not on the individuals or corporations who are directly responsible for it, but upon the community. There are two evident remedies for this state of affairs: first, a change in the liability laws so that the owner of a building in which a fire originates could be made liable for any loss of life or damage to property, — Paris, I believe, has such a law, — or, second, a total revision of the building laws which would absolutely prohibit the construction of combustible buildings in the important business centers or in other places where numbers of people were to be employed, and which would also compel the fire-proof reconstruction of old buildings in centers

which have become important or permit their condemination. A steam boiler which has become unsafe is condemned without hesitation, and the same principle can be applied to buildings. A pesthouse would soon be condemned and torn down in response to enraged public sentiment, yet dangerous "fire traps" are allowed to menace the safety of whole blocks and possibly hundreds of lives and not a word of protest is made.

The fire departments of the cities of the United States are acknowledged to be the superiors in point of efficiency of those of Europe, and hereby hangs a tale. If this were not so, under our present methods of combustible construction it would not be possible for us to maintain cities. In Europe, where wood is comparatively high priced, substantial design and permanent construction is possible and destruction by fire is uncommon. Consequently the maintenance of expensive fire departments is not necessary, as the fire department is not the alternative between possession and total loss of property as it often is in this country.



RESULTS OF FIRE AT PHILADELPHIA, PA. (OCT. 25, 1901).

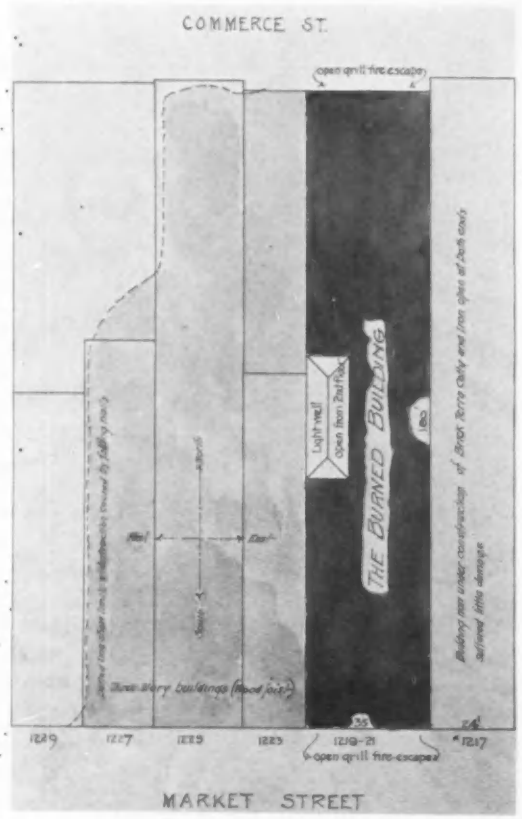
Few people seem to realize that they are taxed in order that certain people owning ground in the business centers of cities may erect and maintain combustible buildings; but if this fact was appreciated it would not be long before an imperative demand would be made for laws which would prohibit the construction or existence of this class of buildings. A large part of the great sums now raised by general taxation to keep an army of firemen waiting, and to maintain costly equipment ready for instant use, could be saved if the necessity for the services of the fire department was not so great, and this burden could then be removed from the shoulders of the people. No one has a moral right to save himself at the expense of the community and his neighbors and entail upon them additional taxation in order that they may insure themselves against the damage which may result to their property from his selfishness or shortsightedness.

If the amount of money wasted every year in the United States (over $130,000,000) could be used to erect better buildings, it would not be long before a marked improvement took place in our constructive architecture; and then part of the money now spent on fire department protection could be either saved to the people or devoted to some permanently useful purpose, and then destruction of life and property by fire would become a rarity.

The horrible destruction of life which accompanied the fire at 1219-21 Market Street, Philadelphia, and the destruction of those adjacent buildings to the west of it by the falling of the walls should point a moral to the folly of municipalities permitting combustible buildings to occupy space in parts of the city given over to business pursuits.

This building was of the ordinary party-wall type, with a front of 35 feet on Market Street and the same width in the rear, and 180 feet in length between the two streets. It was eight stories in height — the last story having been but recently added — and not wholly completed. The whole building was occupied by one firm as a furniture and upholstery salesroom, warehouse and manufactory. The fire is supposed to have originated in the basement, where benzine and varnish were used, and instantly shot up the elevator shaft, spreading the fire and smoke so rapidly that in

a few minutes the interior of the building where furniture, curtains, bedding, etc., were stored, was a seething mass of flames. The building was provided on the front and rear with ordinary open grille fire escapes, upon which some of the occupants were broiled alive by the flames beneath them. The rapid spreading of the flames and the dense volumes of smoke which accompanied the fire made it impossible for much to be done to aid the victims, notwithstanding the self-sacrifice and bravery of the firemen. Some of the occupants jumped from the upper stories and were disemboweled on the awning fixtures or crushed by striking the pavement; others jumped into nets held out by



GROUND PLAN.

FIRE AT PHILADELPHIA, PA. (OCT. 25, 1901).

brave firemen; others still, afraid to attempt the flight through the air, remained on the window sills and grilles and were broiled alive and carried down with the walls when they fell and were crushed under tons of brick and mortar. The building was completely wrecked within an hour after the fire began. The falling of the west party wall, which crushed in the three properties on the west, prevented the spread of the fire in that direction, and the brick and iron building on the east stood as a bulwark against the sea of flame surging eastward.

The bricks on the east party wall of the burned building evidently felt as if by some mischance they had gotten back into the kiln again. The wall, however, was kept in its place by the iron joist construction of the building No. 1217 on the other side of it. The exposed side of this party wall suffered considerably by the streams of water which were thrown on it while the bricks were hot, which caused the surface to "shell" out. Part of this party wall was originally the 9-inch walls of a dwelling which formerly occupied the ground of No. 1217, and had it failed it would have occasioned no great surprise because of its composite character, but it was undoubtedly steadied through the iron joist by the east walls of No. 1217.

The building No. 1217 Market Street, which prevented the spreading of the fire to the east, was under construction, as shown in the photograph. The floors were of hard-burned hollow terra-cotta, flat arches in the lower stories and segment arches in the upper stories resting on 15-inch I beams at 5 feet 3 inches centers with a span of 22 feet. The front of the building was entirely open between the floors, as shown, and the blackening touch of the flames can be seen on the brickwork and terra-cotta, which was of a light color. In the rear of the building the wooden window frames were reduced to charcoal, but the total damage to the building, exclusive of the damage to the exposed party wall, was estimated not to exceed $2,000, part of which was caused by the collapse of a tank house on the roof of the adjoining building. Thus the non-combustible building stood the test and saved the day, for had this building been of the ordinary wood joist construction it certainly would have succumbed and added its quota to the fuel, and a great conflagration would have followed. The heat of the fire was so great that buildings on the south side of Market Street took fire, and plate-glass fronts and windows were cracked. The flying embers ignited the roofs of these buildings, and had it not been for the well-trained fire brigades of the large stores on the south side of the street these buildings would have suffered serious damage and possible destruction, and possibly a general conflagration would have ensued.

Another source of weakness in the design of the burned building was a light well opening in the west party wall, shown in the plan. This light well soon became a flue and contributed to the rapid spread of the flames. The light well also, by separating the party wall into two parts, weakened it structurally, and when the windows and woodwork of the light well burned out left both ends adjacent to the light well without any side support. A triangular piece of the party wall south of the light well soon after fell into the burning building, and soon after the remainder of the wall, down to the roofs of the adjoining buildings, fell outward and crushed in the roofs and floors of the low buildings on the west. The fall of this wall, by depriving the flames of the benefit of the great height in aiding combustion, and by destroying the combustible buildings to the west, made it possible for the fire department to gain control of the fire.

The pathetic and horrible death of twenty-two people, the loss of the property in which the fire originated, the destruction of the adjoining property, all give a warning which should not be disregarded. Life and property are not safe in buildings with wood floor construction. The building No. 1217 adjoining the fire, open at both ends, shows that iron and brick and terra-cotta are safe. The moral is obvious.

THE CHEMICAL AND PHYSICAL PROPERTIES OF PORTLAND CEMENT.

BY B. BRENTNALL LATHBURY, C. E.

THE important ingredients of Portland cement, lime, silica and alumina, can properly be divided into two classes, basic and acid. The lime, which furnishes about 65 per cent by weight of the finished cement, constitutes the basic part, while the silica and alumina represent the acid part. The combination of these three elements under the influence of heat gives us the basic Portland cement clinker. The source of the basic element is some form of calcium carbonate occurring as limestone, chalk or marl; while that of the acid element is furnished by the clay or shale used in combination with the lime ingredient. In whatever form the calcium carbonate is used, it should be as nearly pure as possible except for the presence of clayey matter, for inasmuch as clay is necessary for the manufacture of Portland cement, a certain proportion is not harmful. Magnesia, although present to some slight extent in both limestone and clay, is not a desirable element, and in excess constitutes a serious objection.

The raw materials from which any Portland cement is manufactured are, generally speaking, reduced separately, and their relative hardness or toughness influences the cost of production rather than the quality. The physical properties of the materials have a direct bearing on the hardness of the clinker and the heat required to bring them to the point of incipient vitrifaction.

While it is true that a sound cement depends primarily on the correct chemical properties of the raw materials, yet in the finished cement physical tests are of greater importance than chemical in determining the commercial value of the brand. On the other hand the value of physical results depends largely on the methods employed and the skill and personal equation of the operator; while the relative importance of the different physical tests varies with the use to which the cement is to be put.

For general purposes the tensile tests, either neat or a mixture of sand and cement, are the most satisfactory. While the results of neat tensile tests will give fair indications of quality for periods less than seven days, tests with sand mixtures should cover at least seven days. American cement authorities favor a moderately high tensile strength in the seven-day tests with a uniform increase up to twelve or eighteen months for maximum strengths. Against this are the opinions of some manufacturers who advocate lower results at seven days with a uniform increase up to two, three or even four years in order to attain their maximum strength. While there is reason in the facts supporting each theory, the basis of contention is really the process employed in manufacture. With the rotary process, necessitating a high degree of heat, the lime content must be maintained at a higher percentage in the raw mixture in order to insure uniform and perfect burning than is the case with the many types of set kiln processes used in Europe; the results therefore show a greater strength for short periods of time.

The question of high and low results for tensile strength has been discussed for years, and while formerly the more serious objections to the rotary process were based largely on high tests, they have been gradually removed as the satisfactory results of rotary cements became more apparent each year. From an engineer's standpoint, maximum strength in a short time is greatly to be desired, permitting heavy masonry or steel superstructures to be built on concrete foundations immediately after completion, thus avoiding delays in the progress of the work.

Besides the tensile strength, the next most important tests are those for time of setting, fineness of grinding and constancy of volume when immersed in water either hot or cold. The accelerated tests, while having no direct influence on the tensile strength, furnish sufficient data to render an opinion possible on the quality of any Portland cement in cases where an immediate decision is desirable.

While it is sometimes found necessary under certain conditions to use a moderately quick-setting cement, experience has shown that it is safer to substitute, if possible, one of slower set in case chemical analysis of the cement cannot be made. The rapidity of set in a cement is influenced entirely by chemical conditions, and while many causes of quick setting are harmless, others may have a deleterious influence after the cement has been used. Fine grinding of a cement, by increasing its sand-carrying capacity, is desirable under all conditions of use. Both the cold and hot water pat tests are useful adjuncts in determinations for quality, but while the results of the former are positive, the destructive influence of hot water on some sound cements should not cause their rejection. While immersion in hot water will rapidly detect either an excessive lime content or imperfect burning, both undesirable conditions, some recent experiments tend to show failures in hot water from moderately high but absolutely safe percentages of the alkalies.

The remaining physical tests — strength under compression and specific gravity — can be classed as the least important. Determinations for density, influenced so largely by thermic conditions and manner and method of manipulation, have slight value other than for purposes of scientific research.

Thus it will be seen that while the physical properties of Portland cement are better understood than the chemical action of the ingredients, recourse is had, one to the other, in pursuing investigations along either line and the results established are correlative. Microscopic investigation has also aided in determining both the chemical and physical properties of Portland cement.

Based on the foregoing physical properties, any high-grade Portland cement should conform to the following specified requirements when tested in a properly equipped laboratory under normal conditions.

Time of Setting.	Fineness.
Initial set not less than 1 hour.	100 mesh sieve not more than 10 per cent residue.
Final set not over 8 hours.	200 mesh sieve not more than 25 per cent residue.

Tensile Strength in Pounds per Square Inch.

Neat.		3 Parts Sand Mortar to 1 Part Cement.	
24 hours	250 lbs.	7 days	175 lbs.
7 days	550 "	28 "	250 "
28 "	650 "		

Selected Miscellany.

NOTES FROM NEW YORK.

Taking everything into consideration, there has been no time since the "hard times" of '93 when prospects were brighter or when we had a better right to feel sanguine.

The committee having in charge the preliminary arrangements for the building of the fifty-seven public libraries donated by Mr. Andrew Carnegie have begun

HOUSE AT BROOKLINE, MASS.
Winslow & Bigelow, Architects.

nobly and have made a most satisfactory and sensible arrangement by appointing Messrs. McKim, Mead & White, Babb, Cook & Willard and Carrere & Hastings as an advisory board to supervise the designing and erection of all the buildings.

Although this decision will undoubtedly disappoint many of our young architects who were eagerly looking forward to competitions galore, it is undoubtedly for the best interests of the community, and we feel sure that we will have a series of harmonious and scholarly buildings.

Construction work on the $2,500,000 annex to the Mutual Life Insurance Company's building, which is in several respects a very remarkable and unusual structure, is now nearing completion. Remarkable engineering work has been done, with the result that the cellar floor is 55 feet below the sidewalk level and 35 feet below the line of standing water. The foundations rest on bed rock 100 feet below the surface of the ground. Above the sidewalk the annex is eight stories in height in Cedar Street, matching the older extension in that street, while it towers sixteen stories high in Liberty Street. The highest part of the building had to be underpinned, and is the highest building which has ever been so treated. The work was complicated also by the fact that the ground floor was filled with the safes and vaults of a safe deposit company, and a settlement of the sixteenth of an inch would have stopped the working of the locks.

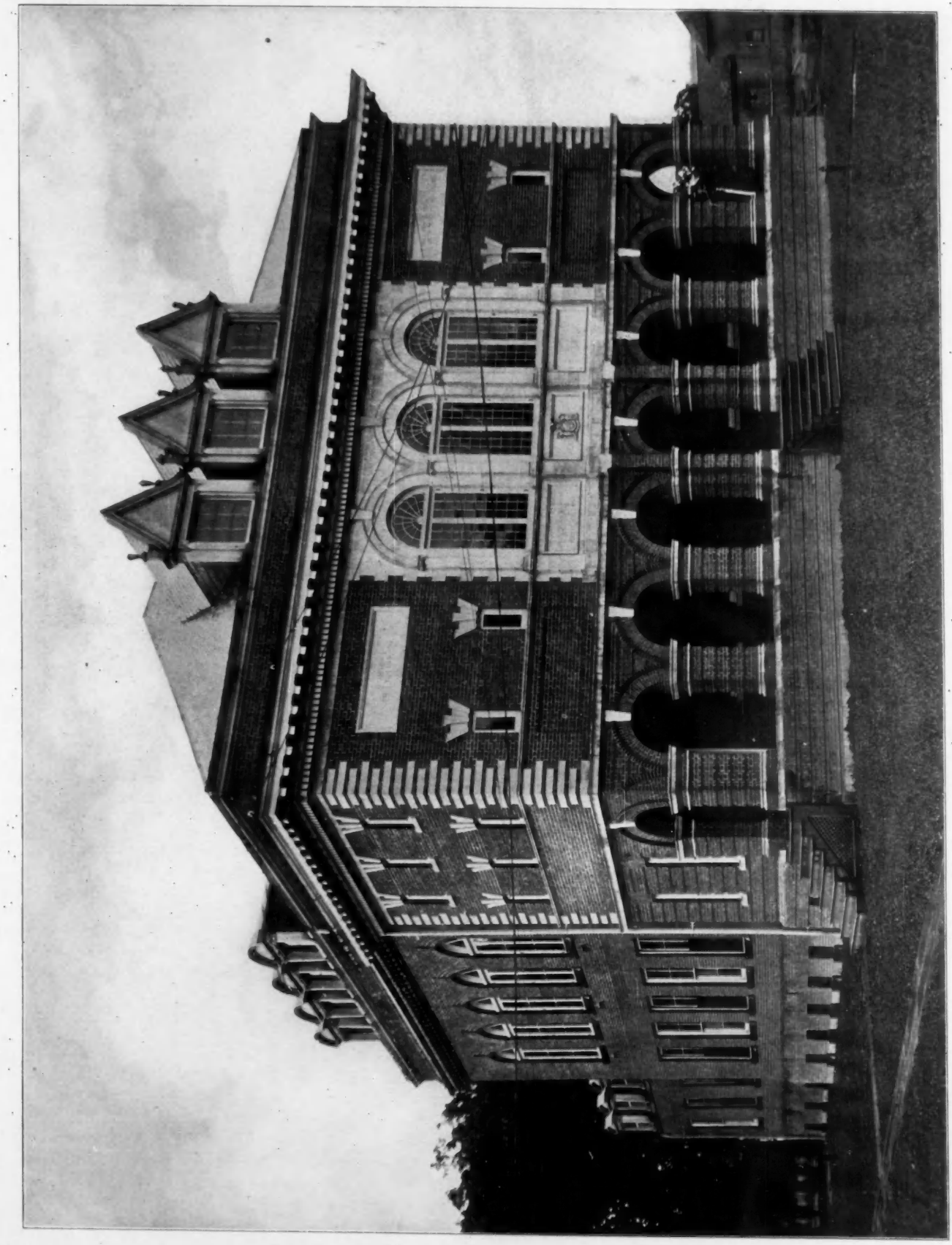
DETAIL BY FAVROT & LEVANDAIS, ARCHITECTS.
Northwestern Terra-Cotta Company, Makers.

DETAIL EXECUTED BY THE EXCELSIOR TERRA-COTTA COMPANY.

HOUSE AT CHICAGO, ILL.
Handy & Cady, Architects.

Caissons formed of steel tubes three feet in diameter were sunk to support the adjoining buildings, and then work was begun on the foundations proper. A discovery that under the hardpan there was a formation of loose sand and crumbling rock in places 32 feet deep, forced the excavators to go to solid rock with all the main caissons, and this was 100 feet below the sidewalk level.

A complete enclosure of the lot was made by sinking



DINING-HALL, THOMAS ORPHAN ASYLUM FOR INDIAN CHILDREN, IROQUOIS, N. Y.
Barney & Chapman, Architects.

FLATS, CINCINNATI, OHIO.
Elzner & Anderson, Architects.

thirty steel caissons, each 8 feet in width and ranging from 15½ feet to 22 feet in length. When these were down to the rock a complete water-tight enclosure was made by ramming the spaces between the caissons full of red clay. The entire operation took many months and was watched with interest by many architects and engineers.

G. Kramer Thomson is drawing plans for a seventeen-story addition to the building of the Manhattan Life Insurance Company to cost about five hundred thousand dollars. The design will be similar to the present building of the company.

Percy Griffin is drawing plans for two model tenements to be erected for the City and Suburban Homes Company at 78th and 79th streets near Avenue A.

HOUSE AT CHICAGO, ILL.
Hugh M. G. Garden, Architect.

RESIDENCE AT CINCINNATI, OHIO.
Elzner & Anderson, Architects.
Roofed with American S. Tile.

Hobart A. Walker has completed plans for twenty-seven, two and one half story brick houses to be built on Willoughby Avenue, Steuben Street and Emerson Place, Brooklyn, for the Morris Building Company. The fronts will be of red brick and Indiana limestone, and each alternate house will have a half-timbered gable. The total cost will be about one hundred thousand dollars.

DETAIL BY DARLING & PEARSON, ARCHITECTS.
Perth Amboy Terra-Cotta Company, Makers.

C. P. H. Gilbert is drawing plans for a fourteen-story bachelor apartment house to be erected on 52d Street near Fifth Avenue for Edward Holbrook, president of the Gorham Manufacturing Company.

CHAPEL, ROSE HILL CEMETERY.

THE chapel at Rose Hill Cemetery, Chicago, J. L. Silsbee, architect, illustrated in the plate form of this number, is an example of the very successful use of faience for interior finish. The tendency, we are glad to say, is towards a greater use of burnt clay for interior finish of all the better class of buildings, and of this material none lends itself more readily to plain, decorative or color treatment than faience. The work of the Grueby Company, which executed this commission, is done with a thorough understanding of the material, its application, its possibilities and its limitations.

HOUSES AT COVINGTON, KY.
Elzner & Anderson, Architects.

Correspondence.

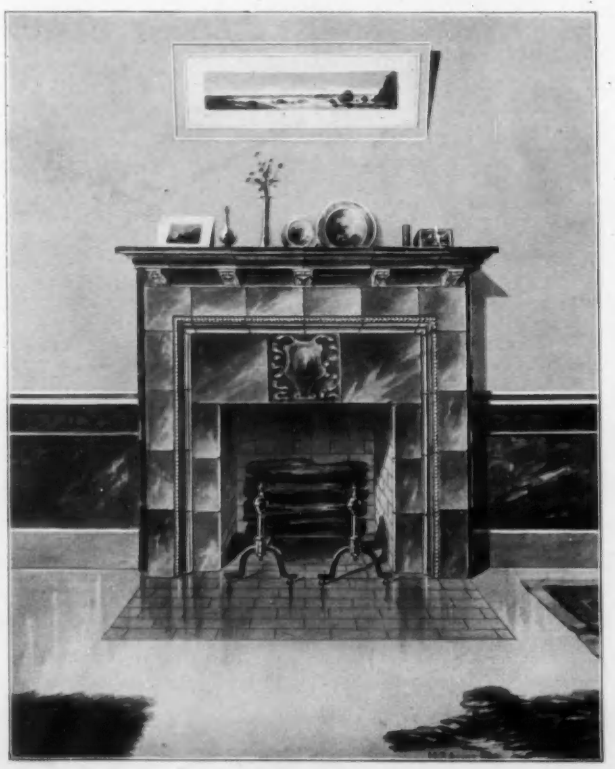
HOW COMPETITIONS SOMETIMES WORK.

If any of your readers ever have occasion to try to induce possible clients not to hold a competition without a detailed and properly drawn out programme and a professional adviser, the argument may perhaps be impressed by the use of the following illustration:

ORNAMENTAL DISKS ON MAIN FRIEZE, THIRD CHURCH OF CHRIST, SCIENTIST.
American Terra-Cotta and Ceramic Company, Makers.
Hugh M. G. Garden, Architect.

A large company in the city of New York had decided to erect an office building, and in connection with the enterprise one of the first points to be decided was that of the selection of an architect. Several gentlemen on the building committee had friends in that profession who must certainly "have a chance"; then there were a number of others who applied; so all were given a few instructions as to what sort of a building was required, and told that they might submit sketches. Some twenty drawings of all kinds was the result. These were placed around the room and the committee proceeded to select the best one. After some little inspection they decided that the proper *modus operandi* was that of elimination, and forthwith proceeded to reject six or eight of those drawings which seemed to present the least satisfactory buildings. They then adjourned. Several weeks later they met again and the sifting process was continued until there remained two buildings, either of which was so eminently satisfactory that there seemed to be little choice. One of these was finally unanimously accepted, when the startling fact was revealed that the winning design was the veritable "stone that the builders rejected," which became "the head of the corner," for it appeared that it had been one of the first "eliminated,"

PANEL BY C. B. J. SNYDER, ARCHITECT.
New York Architectural Terra-Cotta Company, Makers.



STOCK MANTEL NO. 18.
Made by the Hartford Faience Company.

but in some way had crept back amongst the eligibles without discovery. It has since materialized into one of the successful New York skyscrapers.

WILLIAM O. LUDLOW.

A CHURCH BUILT OF ENAMEL BRICK.

THE New Third Church of Christ, Scientist, Hugh M. G. Garden, architect, illustrated in the plate form of this number, is built of a beautiful velvet-finished enameled brick, made by the Tiffany Enameled Brick Company. Mr. Tiffany, the president of the company, has long contended that the use of enameled brick for exteriors is desirable, especially in many of the western cities, for many reasons, among them, and one of the principal, being that a building so built is better able to withstand the smoke and dirt nuisance and so preserve its original beauty. Another good reason is that

SOMETHING NEW IN ADVERTISING.

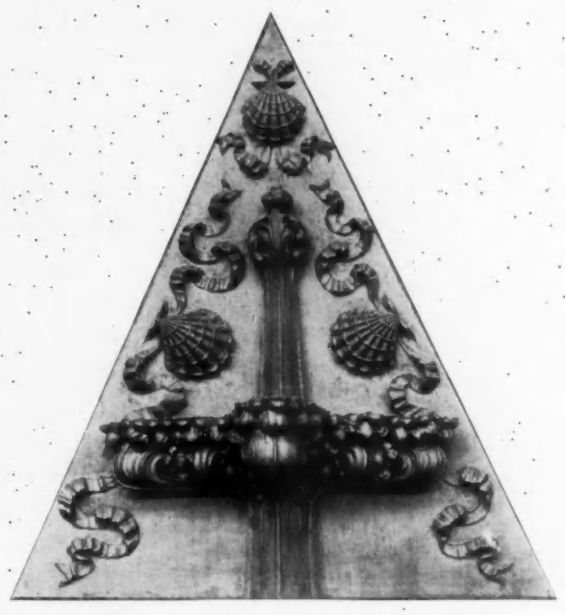
rich effects may be obtained in the body of a building by the use of soft tints under a semi-glaze. Certainly the results obtained in this building have been highly satisfactory to all concerned.

SUNDRY ITEMS.

Meeker, Carter & Booraem, New York agents for the Rogers Terra-Cotta Company, have closed contract for architectural terra-cotta for the new High School at New Brighton, Borough of Richmond, New York. C. B. J. Snyder, architect.

Charles Bacon, New England agent for Sayre & Fisher Company, reports the following new contracts for brick: Carleton Hotel, Boston, A. H. Bowditch, architect; residence, Boston, Peabody & Stearns, architects; Conservatory of Music, Boston, Wheelwright & Haven, architects; Board of Trade Building, Boston, Winslow & Bigelow, architects; Carpenter Building, Boston, A. H. Bowditch, architect.

The successful outcome of the endeavors of the Blue Ridge Enameled Brick Company of Newark, N. J., enameled brick, at the Pan-American Exposition, is doubtless as gratifying to the management as it is to all concerned, even remotely. It cannot be said that the award comes in the nature of a surprise to well-informed per-



DETAIL BY BARNEY & CHAPMAN, ARCHITECTS.
Atlantic Terra-Cotta Company, Makers.

sons, for the reason that it was logical and based upon merit. The company has been recognized as being thoroughly representative of the best element in the trade, and has by its career fully deserved such a distinction. A spirit of enterprise, intelligence in management and

DETAIL BY FRANCIS H. KIMBALL, ARCHITECT.
Conkling-Armstrong Terra-Cotta Company, Makers.

industry have rendered every department as efficient as possible, and made the finest product, a high order of article. The company has enjoyed, however, what is more practical and pleasant, and that is a public indorsement of its products in the shape of patronage. — *Exchange.*

NOW is the winter with its snow slides made as safe as glorious summer, by the use of Folsom Snow Guards. If the prophet stood no show at home, it is not so with this particular make of snow guards, for it is a fact that the leading architects of Boston and those who

PUMPING STATION, CHARLESTOWN, MASS.
Arthur F. Gray, Architect.

follow have used them in abundance on churches, schoolhouses, libraries, residences, railway stations, pumping stations and the like, until we have come to consider a building not quite complete without them. See what Mr. Gray, the architect of the pumping stations here illustrated, says:

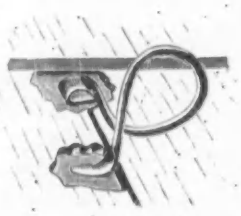
FOLSOM SNOW GUARD COMPANY, Boston, Mass.

Gentlemen,—I have used your snow guards on several buildings, including the following:

Railway stations for Boston & Maine Railroad at Malden and Newburyport, Mass.; pumping stations for Metropolitan Sewer at Deer Island, East Boston and Charlestown, Mass.; also many other buildings, and have found them satisfactory.

Very truly yours,
(Signed). ARTHUR F. GRAY.

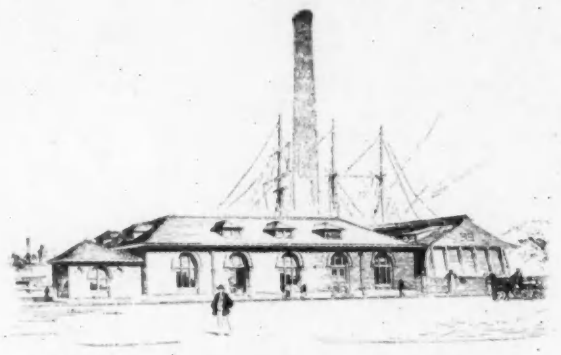
The Folsom method of protecting roofs, which differs from the guard-rail by placing guards all over the roof, is scientifically correct; the guards protect the roof at smaller cost, as well as more effectively, by holding the snow where it falls until it melts and gradually disappears, preventing masses of snow and ice, not only from sliding off on walks, to the danger of passers, or injuring shrubs planted near the building, but from banking at the eaves, with the consequent danger of back water and leaks.



CLIMAX GUARD.

They are so simple and so effective that countless imitations have been put upon the market so formed as to give a brace to the snow-top (or projecting loop), for which feature greater strength is claimed.

It is this feature that is the weakness of all braced guards. The Folsom Guard is strong enough to hold any load of snow the roof will carry, but under *excessive* pressure it will bend *without* raising the upper or puncturing the lower slates. This we consider the most valu-



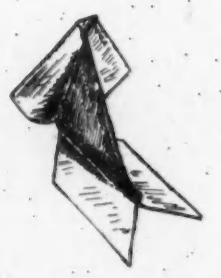
PUMPING STATION, EAST BOSTON, MASS.
Arthur F. Gray, Architect.

able feature of a snow guard, for it insures a roof against any damage.

The Climax pattern for old roofs is applied by pushing the long end into the joint between the slates until it touches the lower edge of the slate in the course above. This form is securely locked by the sidewise pressure of the snow.

The Standard Guards have spring grips that act when the guards are pushed into the joints between the slates; when the guard touches the lower edge of the slate in the course above, it presses the rear clamps against the two adjoining slates.

All the guards made by this company are provided with a heavy coating of zinc and do not rust out like galvanized wire.



STANDARD GUARD.

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ПОЛЯ

ADMINISTRATION BUILDING THOMAS ORPHAN ASYLUM FOR INDIAN CHILDREN, IROQUOIS, N. Y.

BARNEY & CHAPMAN, ARCHITECTS.

ПОЬЖ

HOUSE AT TUXEDO PARK, N. Y.

T. HENRY RANDALL, ARCHITECT.

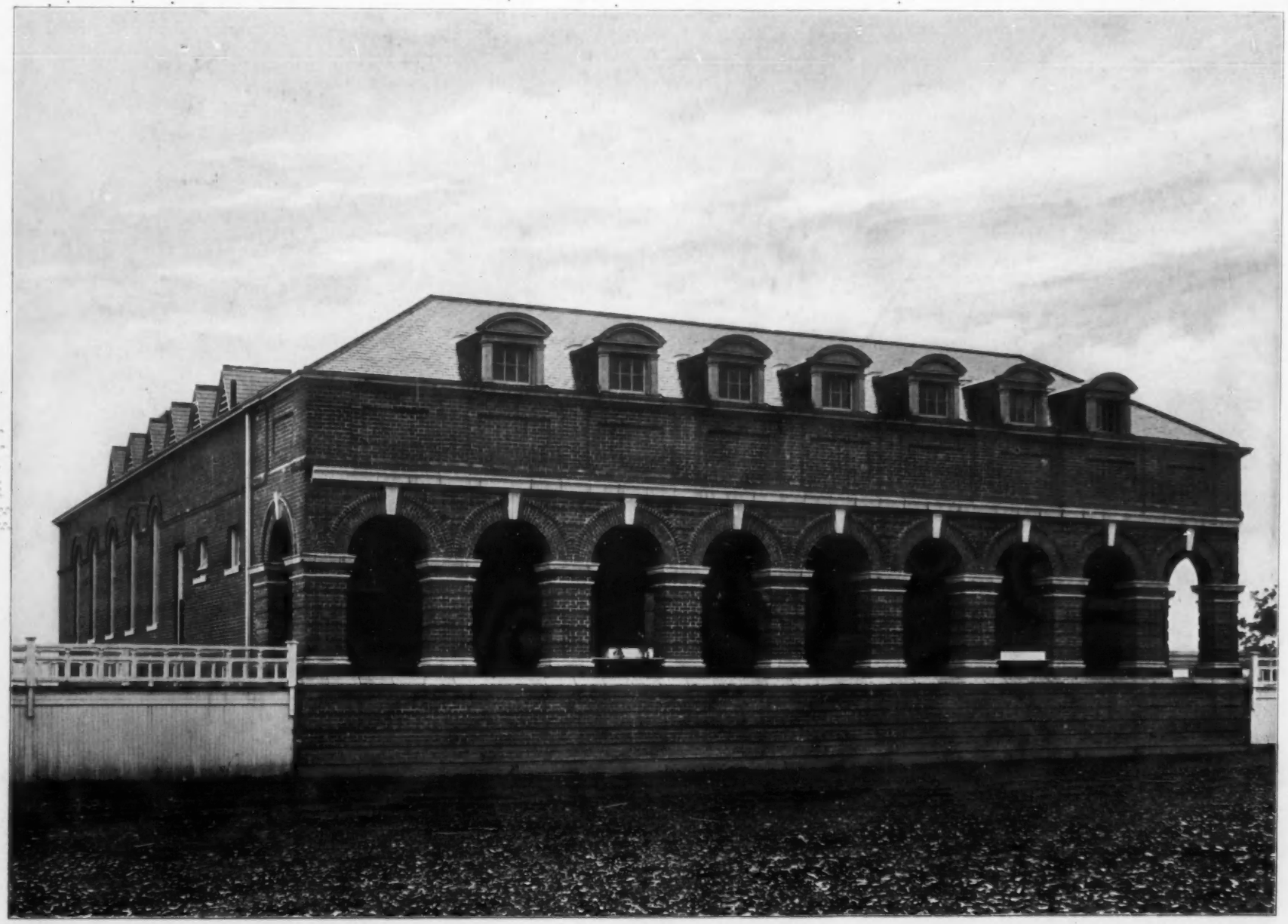
INTERIOR OF CHAPEL, ROSE HILL CEMETERY CHICAGO, ILL.

J. L. SILSBEE, ARCHITECT.

UIUC

ПРЫМ

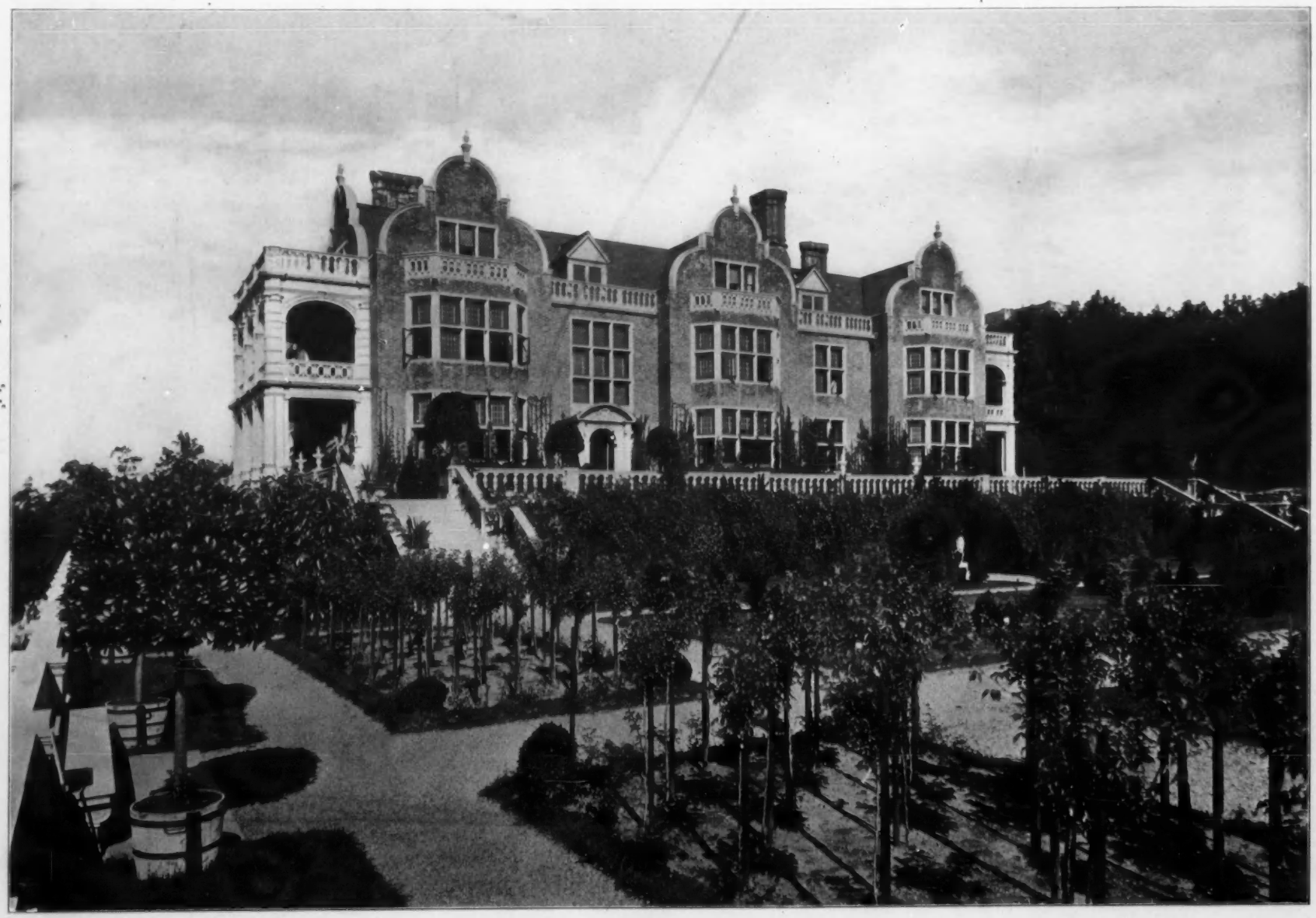
THIRD CHURCH OF CHRIST, SCIENTIST, CHICAGO, ILL.
HUGH M. G. GARDEN, ARCHITECT.



DORMITORY THOMAS ORPHAN ASYLUM FOR INDIAN CHILDREN, IROQUOIS, N. Y.

BARNEY & CHAPMAN, ARCHITECTS.

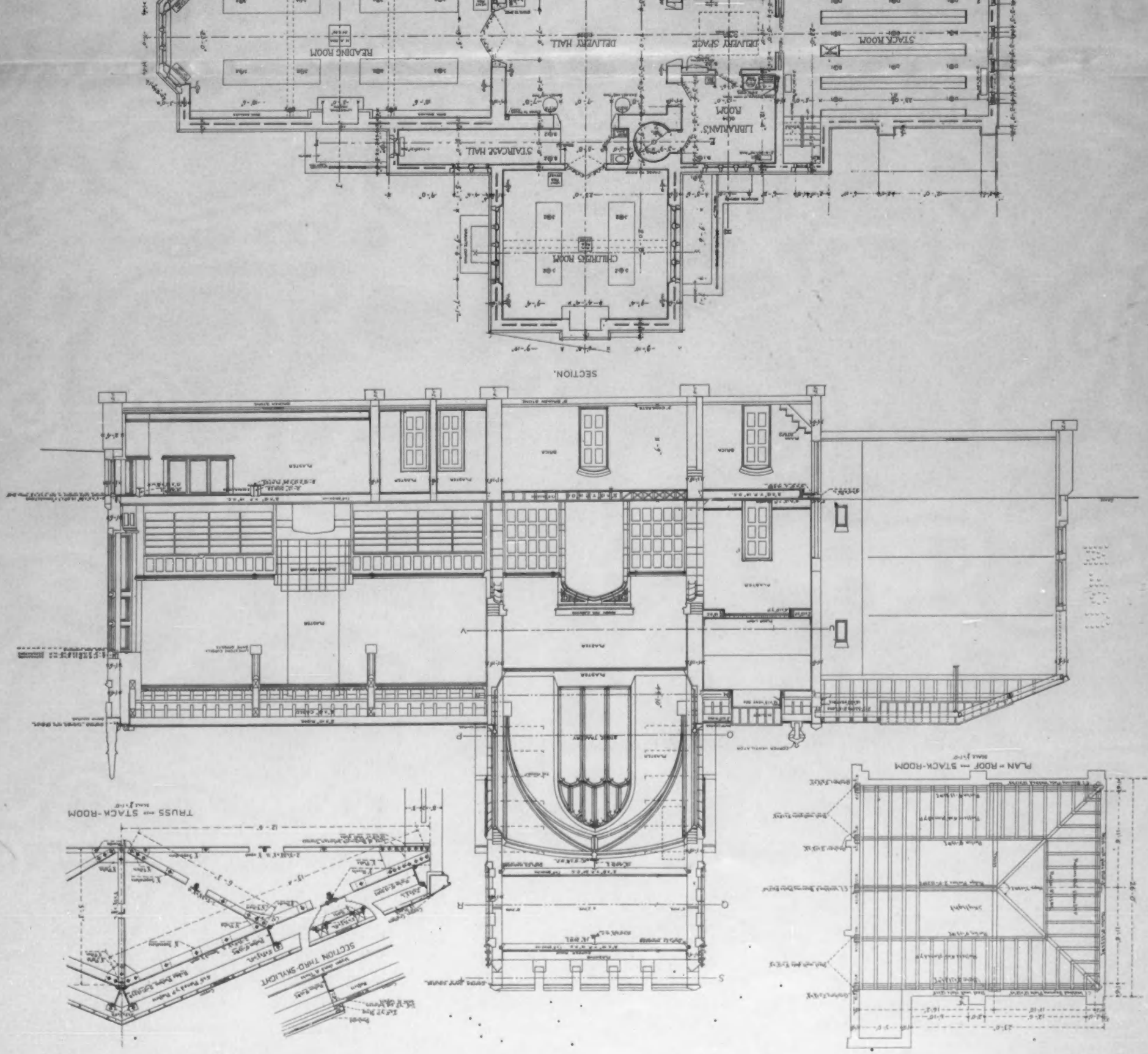
NOT FOR



HOUSE AT TUXEDO PARK, N. Y.

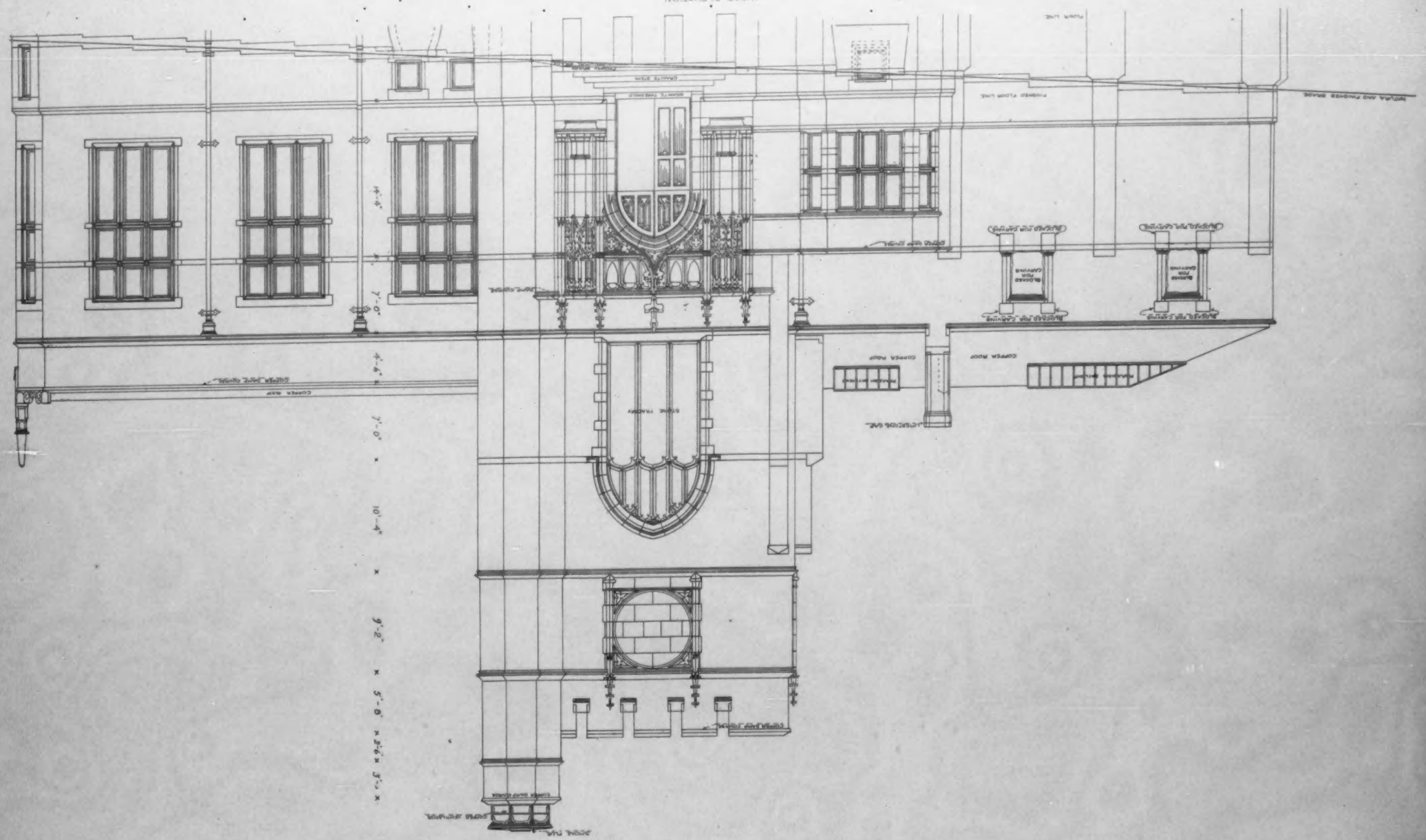
T. HENRY RANDALL, ARCHITECT.

CRAM, GOODHUE & FERGUSON, ARCHITECTS.

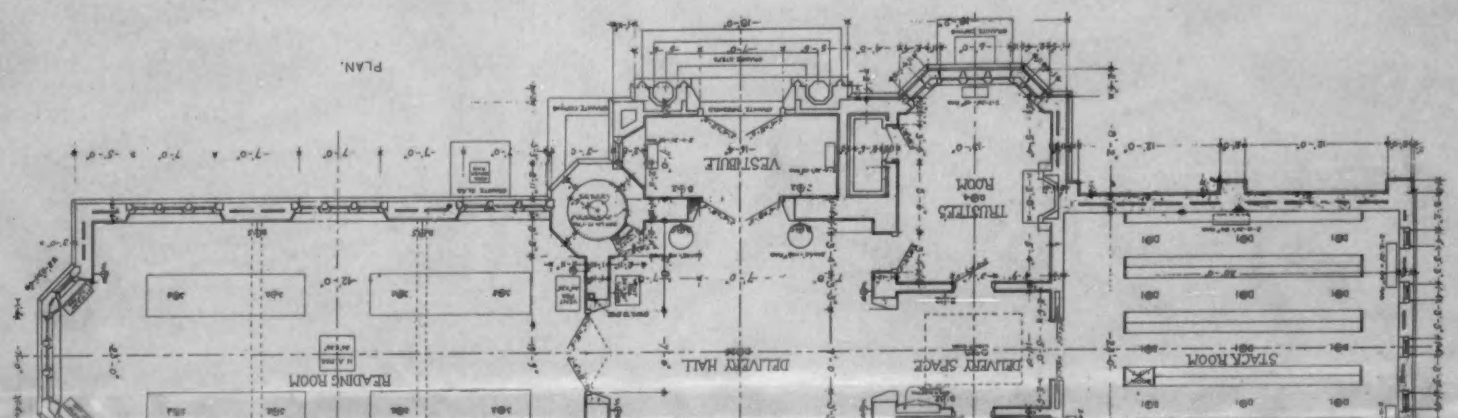

READING ROOM
DELIVERY HALL
DELIVERY SPACE
STACK ROOM
LIBRARIANS' ROOM
STAIRCASE HALL
CHILDRENS ROOM
SECTION.
TRUSS — STACK-ROOM
SECTION THRO SKYLIGHT
PLAN — ROOF — STACK-ROOM

PUBLIC LIBRARY, NASHUA, N. H.
CRAM, GOODHUE & FERGUSON, ARCHITECTS.

WEST ELEVATION.



PLAN.



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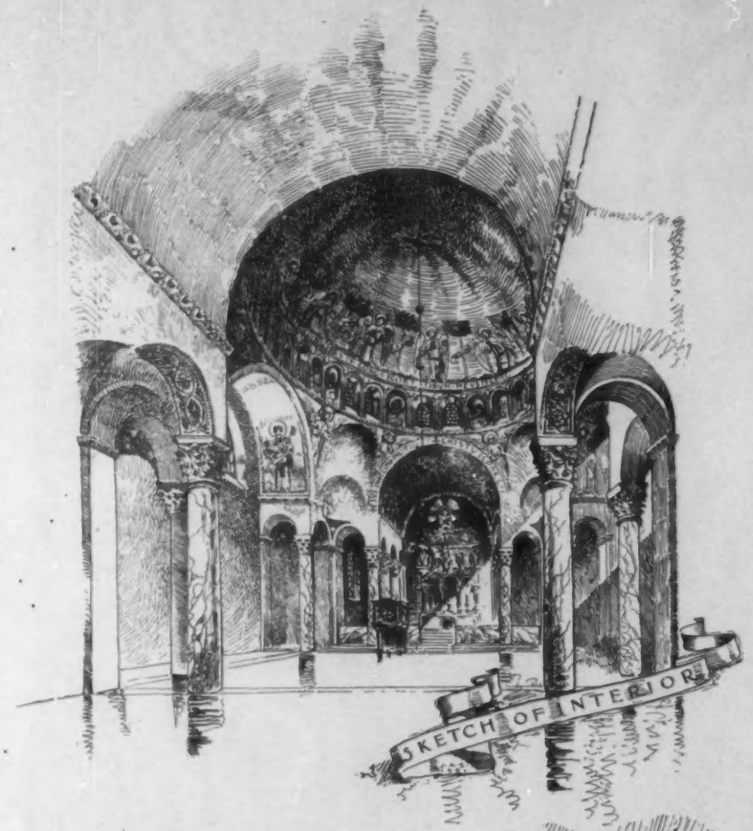
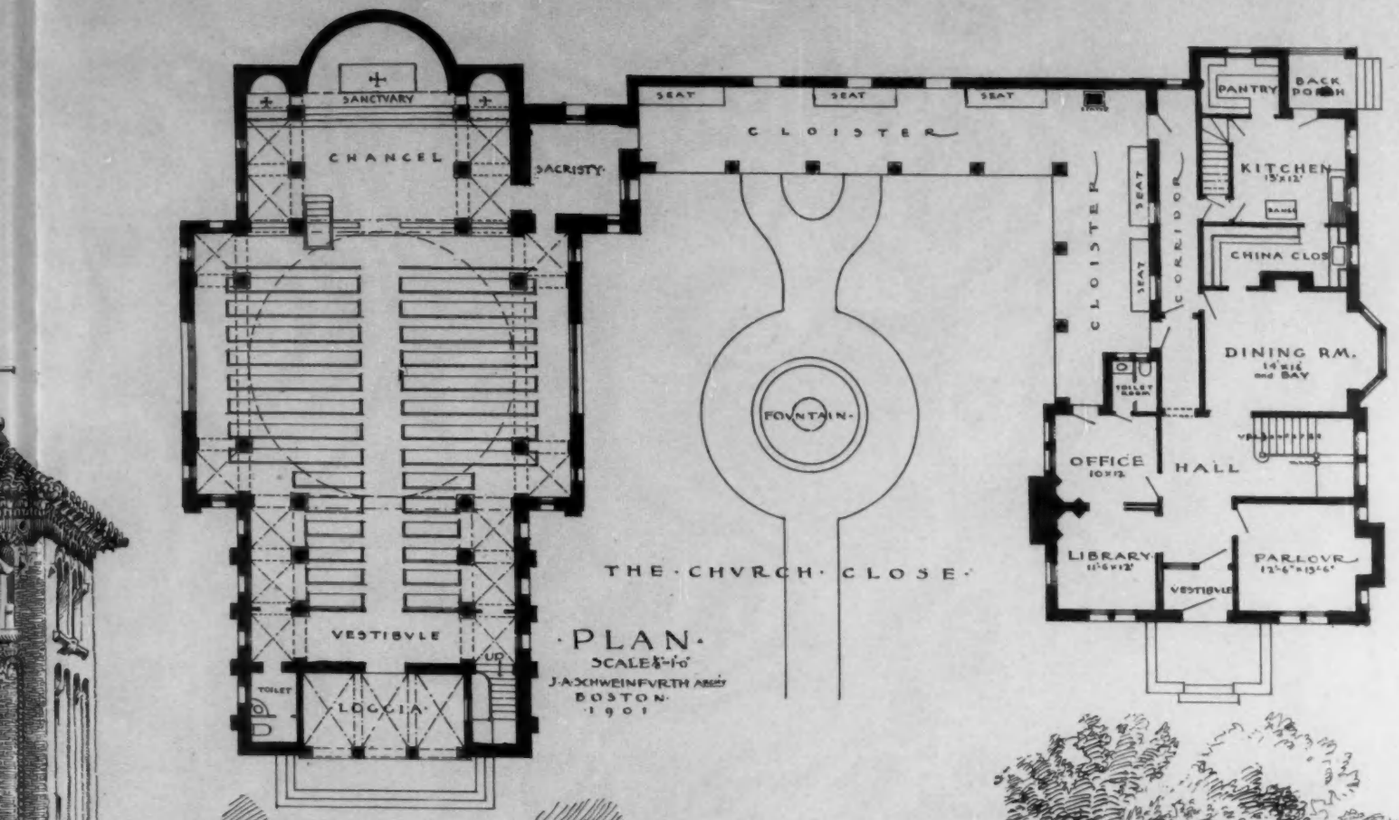
CRAM, GOODHUE & FERGUSON ARCHITECTS.

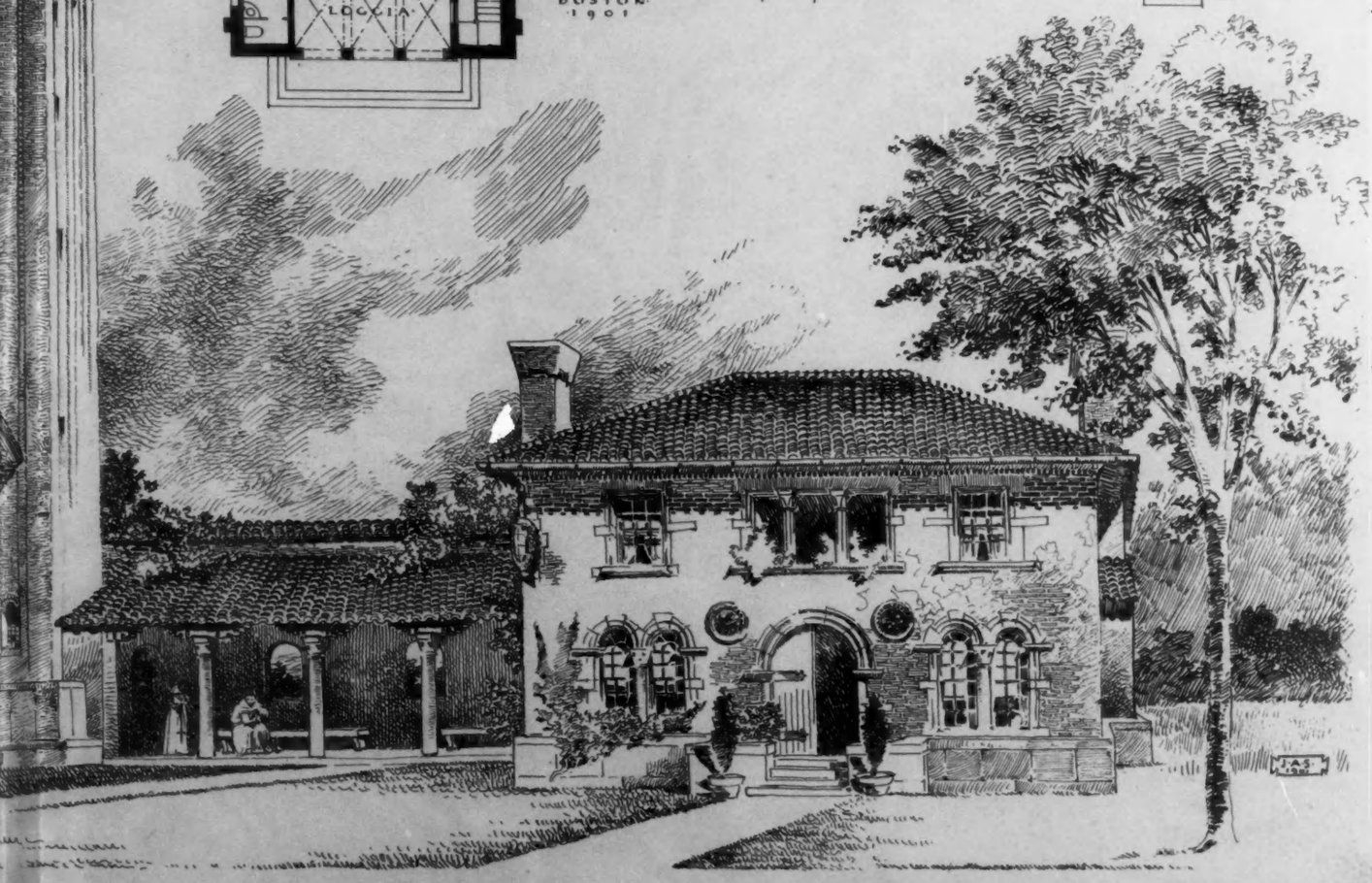
MTOU



SAINT PETER'S R. C.
J. A. SCHWEINFURTH, ARC

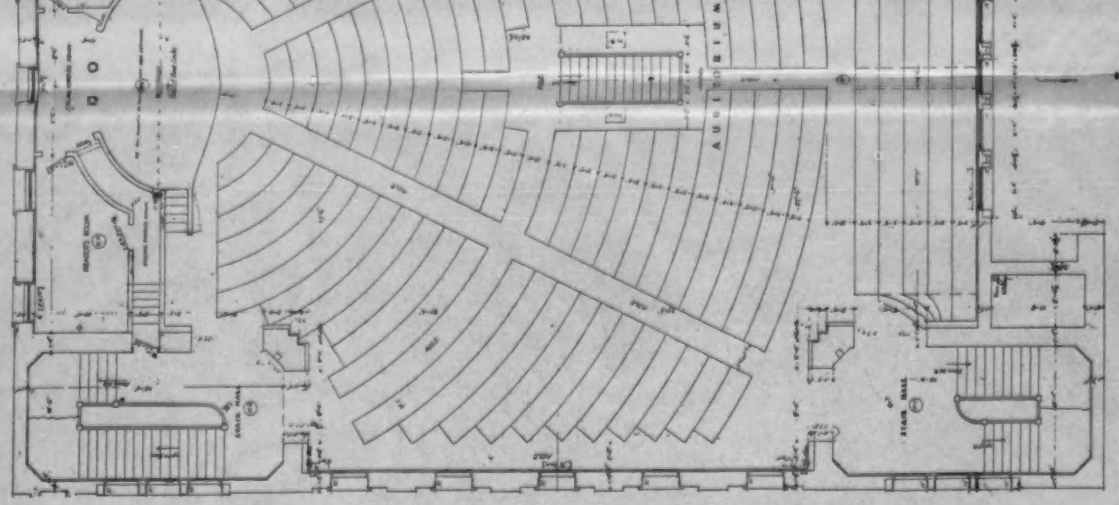
PLATES 84 and 85.

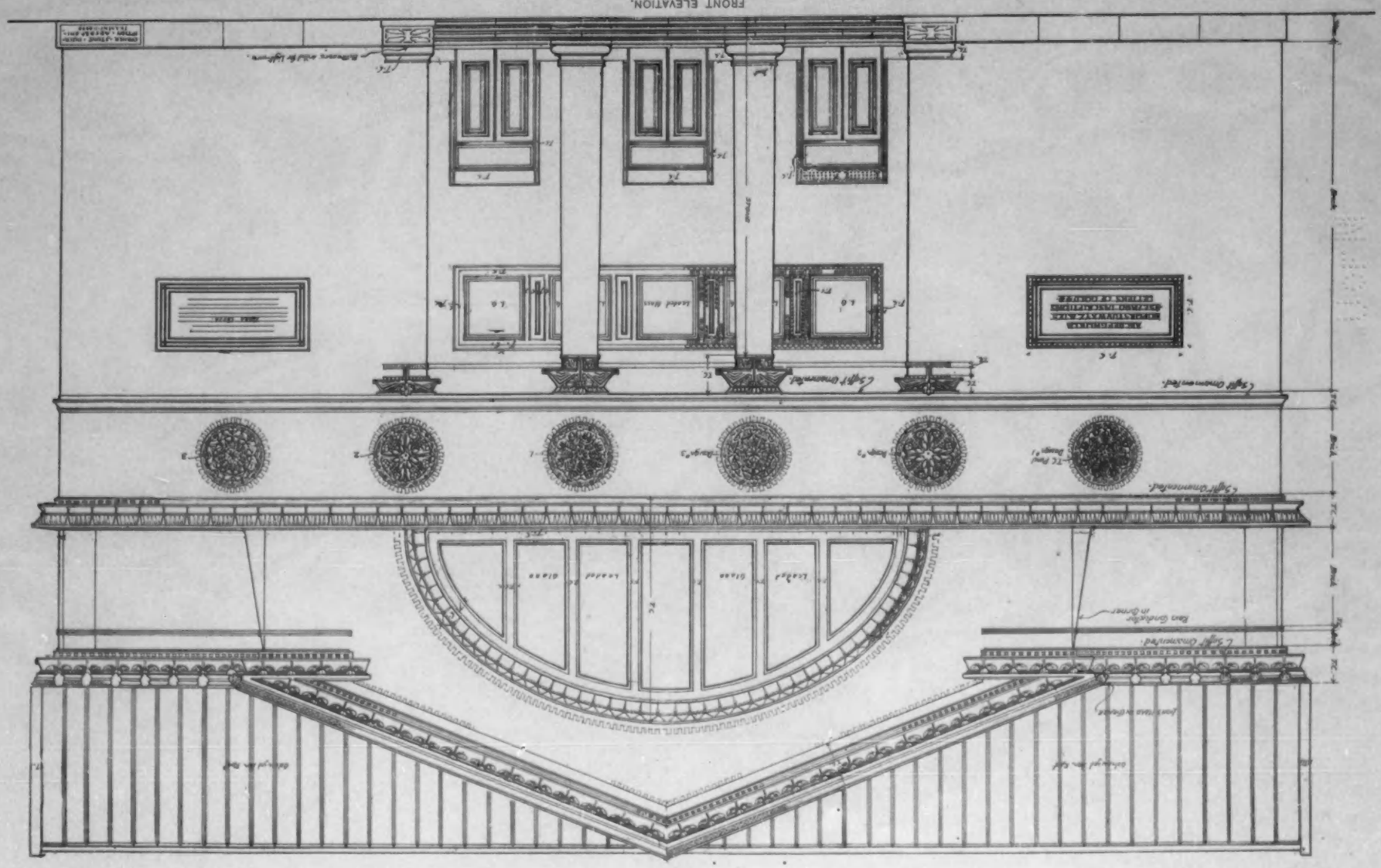


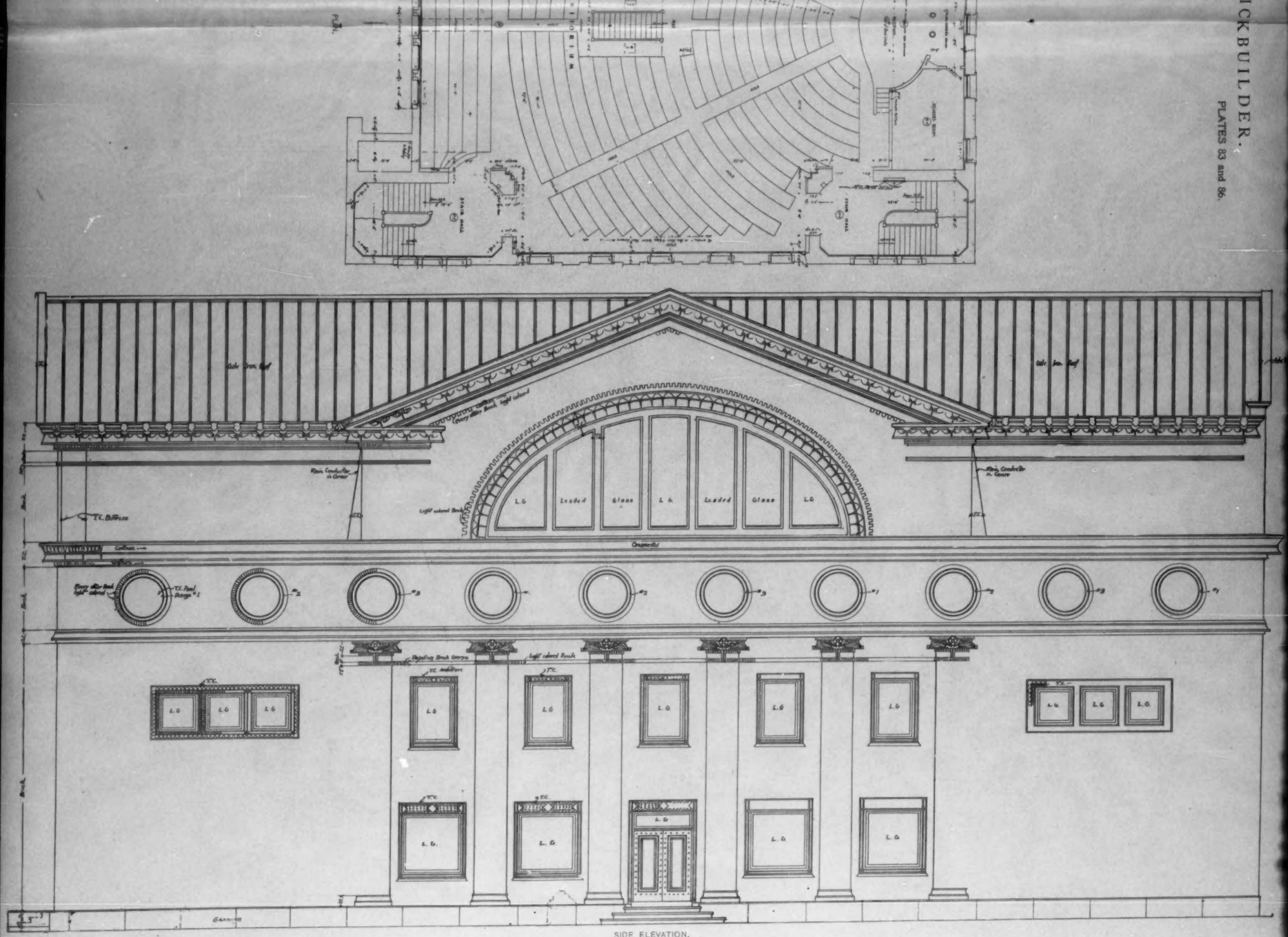


TER'S R. C. CHURCH.

WEINFURTH, ARCHITECT.


AUDITORIUM
PLAN.


FRONT ELEVATION.

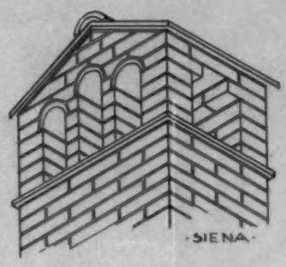


SIDE ELEVATION.

THIRD CHURCH OF CHRIST, SCIENTIST, CHICAGO ILL.

HUGH M. G. GARDEN, ARCHITECT.

DETAILS OF ITALIAN BRICKWORK
MEASURED AND DRAWN BY WILL S. ALDRICH
CHIMNEYS



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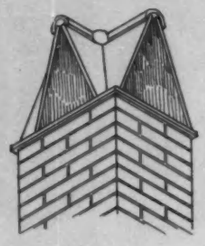
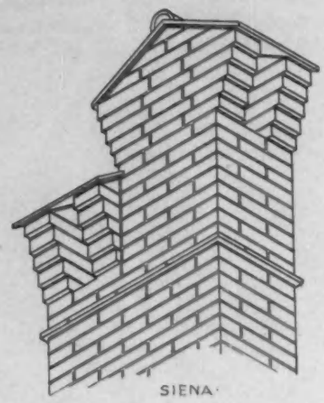


VITERBO



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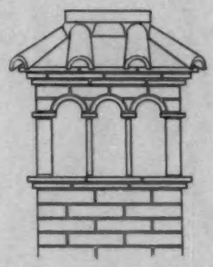
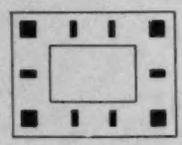
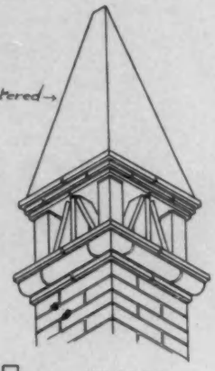




ORVIETTO



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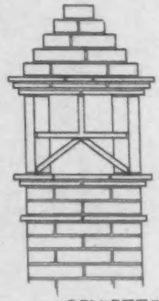

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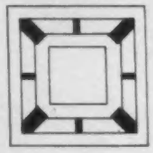

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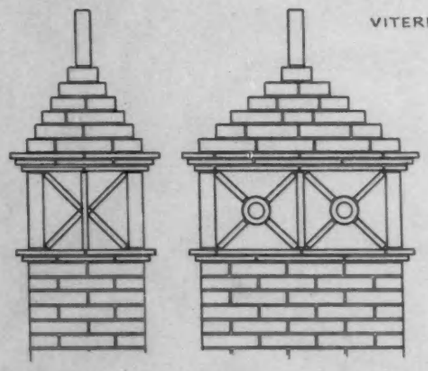
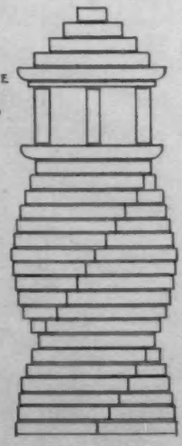
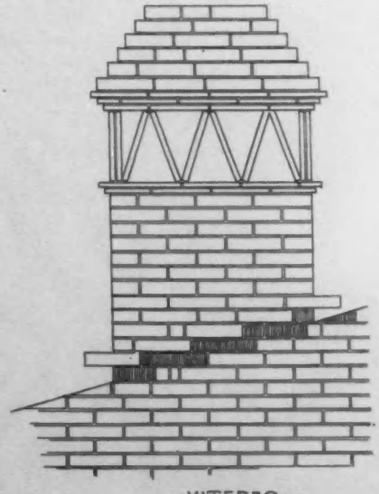


ORVIETTO

A CRAZY ONE FROM CARAVAGGIO





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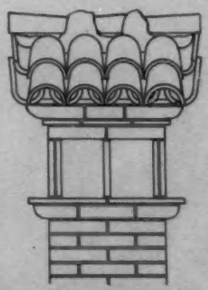

CARAVAGGIO